

COAL AGE

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To Be Fair Is To Be Fortunate

BY CARL SCHOLZ



At the Coal Stabilization Conference held in connection with the February meeting of the American Institute of Mining and Metallurgical Engineers it was clearly demonstrated that there is "nothing new under the sun."

Everyone of the measures proposed as likely to be helpful has been tried at various times, and even now the trick is not turned. Nevertheless there is still hope that by closer co-operation between all parties, beneficial results can be obtained.

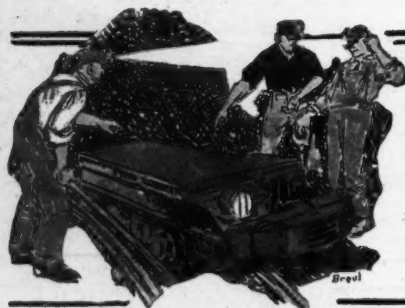
Most essential is it that any movement to be applied by all the parties at interest be based on doing a fair day's work for a fair day's wage. It is necessary to eliminate selfishness and greed and to substitute fairness and justice in their place. No matter how many papers are read and schemes advocated, until correct principles are applied and practised by the legislators making our laws, by the coal operators and banks providing the capital and by the laborer in converting the raw material into a finished product, the goal will not be successfully reached.

It is only necessary to analyze the cause for the present high cost of production to prove the correctness of the above conclusion. Prior to the war, owing to various causes, the coal industry had reached an extremely low ebb. It was impossible to establish

central selling agencies, as are now advocated, because the law prevented their formation. The railroads could not grant reduced freight rates in the summer because some of the railroad commissions had stated that if low freight rates were made in that season similar rates would have to be maintained during the winter. The storage of coal was not feasible because of the limited credit of the coal companies and the knowledge on the part of the buyer that cheap fuel would be available at the close of the year.

The war converted the surplus coal production into a shortage, with the result that coal operators made up for past losses by advancing their charges, a situation which brought about regulation of prices and increased wage demands. Higher prices for coal, in turn, resulted in a generally increased cost of living, although other commodities were perhaps equally or more responsible because they also had been depressed and needed assistance.

It really seems that the American people are now awakening to the true condition of the coal industry and realize its need, and the present seems the time in which to establish a propaganda, based on justice and fairness to the consumer, the producer and the laborer, of such a character as may eliminate the high peaks and the deep valleys in the curve of production that are so detrimental to true economy.



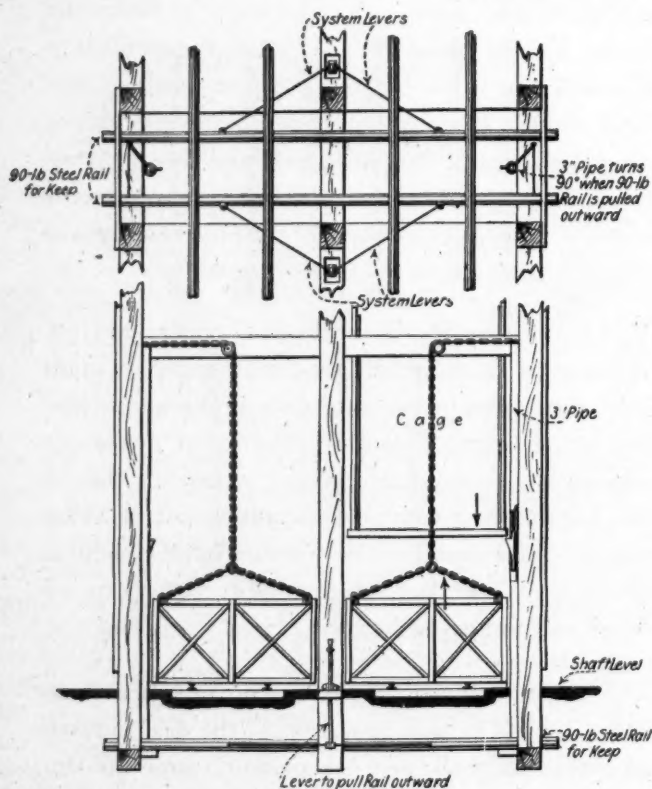
IDEAS AND SUGGESTIONS

PRACTICAL SCHEMES THAT MAKE THE DAY'S WORK EASIER

Safety Device for Shaft Station

AT THE Burnside Shaft of the Philadelphia & Reading Coal & Iron Co. near Shamokin, Pa., an interesting device for the protection of the men and also for stopping the cage at the proper point is installed.

By referring to the accompanying diagram it will be noted that there is a 3-in. pipe on one side of the shaft. This has been slit for a distance of about 8 ft. Through this slit a cam projects about 8 in. into the shaft. To the end of the cam within 3-in. pipe a chain is attached which passes over a pulley about 10 ft.



PLAN AND ELEVATION OF SAFETY DEVICES

Illustrating the method of automatically raising and lowering the station gates and a new type of keeps.

up the shaft, then over another pulley marked "D," then down to the gate at the shaft bottom. The cage in its descent pushes down on the cam, which automatically raises the gate out of the way.

Besides this device a special seat for the cage is provided so that the cage will always come to the proper position and thereby allow the cage track to exactly register with the track in the shaft station. This cage seat consists of two 90-lb. steel rails which run the long (transverse) way of the shaft. These rails are so arranged that they can be moved by a lever out of the way to allow the cage to pass to a lower

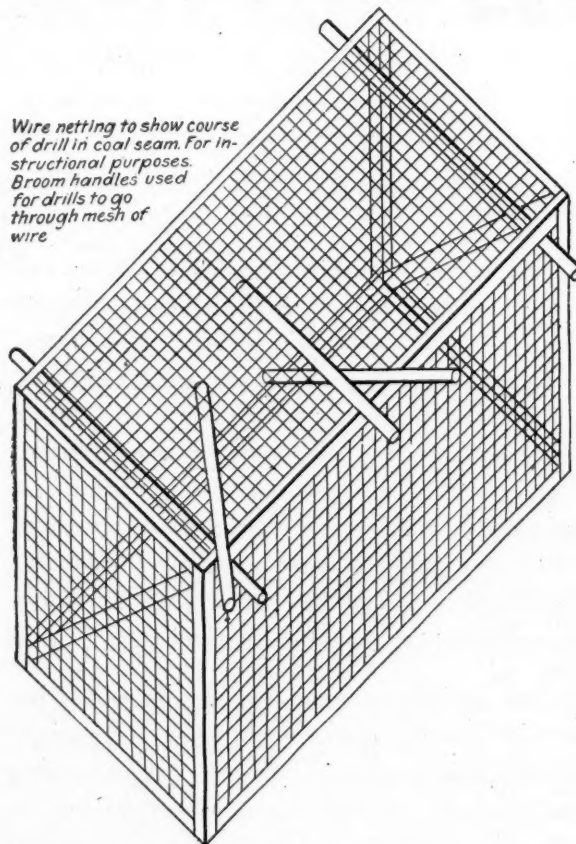
level. When they are moved out of the way a system of levers also changes the position of the 3-in. pipe, mentioned above, so that the cage in descending will not strike the cam and therefore will not raise the gates.

Wire Cabinet for the Class Room

BY R. Z. VIRGIN

Pittsburgh, Pa.

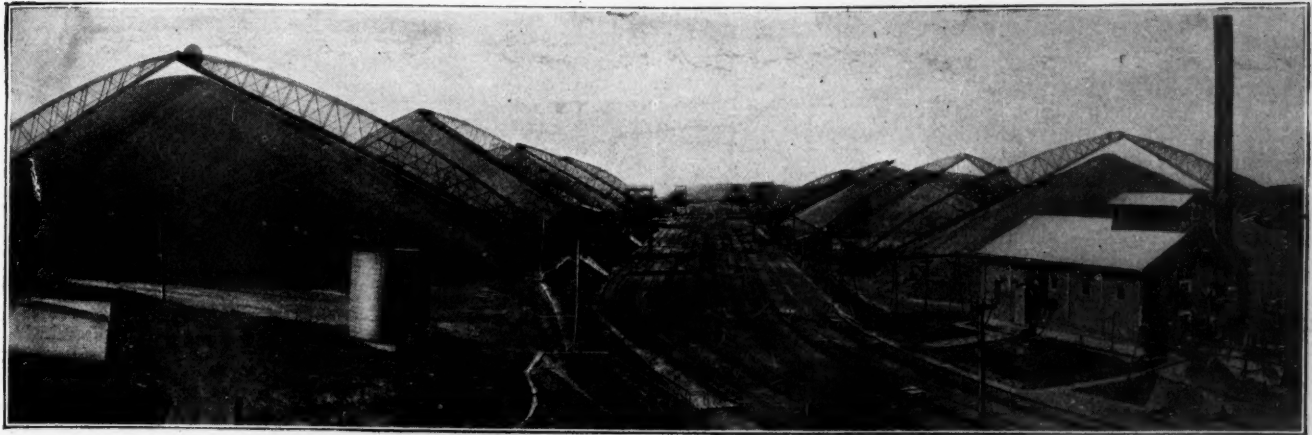
AWIRE netting cabinet similar to the one shown in the accompanying illustration may advantageously be used in the lecture room, either at the mining night school or the college of engineering, to teach the proper method of drilling holes and placing shots. Broomsticks or similar rods pass through the wire and show



WIRE CABINET WHEN COMPLETED

the course and location of each hole throughout its entire course.

When a blind top is temporarily placed over the cabinet an excellent opportunity is afforded the student to display his judgment in effectively directing the drill bit throughout its course so that the bottom of the hole and consequently the explosive charge may be in the proper position.



COAL PILES OF BRIDGEPORT TRANSFER YARD

This yard, unlike that near Schuylkill Haven, is constructed on level ground and operates entirely by direct mechanical equipment, whereas the other installation, forming the main subject of this article, is a sidehill and uses the power furnished by water under pressure. This installation has a total capacity of 520,000 tons of coal on its eight floors and was constructed by the Dodge Engineering Co.

Reading's Storage Yards Keep the Mines Running Steadily

Coal Storage, Regardless of Type, Has a Tendency to Decrease the Cost of Fuel to the Consumer by Equalizing the Demand—Other Benefits Than Those Which Are of Direct Financial Advantage Accrue to Those Who Operate Such Plants

BY DEVER C. ASHMEAD
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FOR some years past, in order to partially equalize the demand upon the mines, anthracite-producing companies have introduced storage yards. One of the largest of these is that belonging to the Philadelphia & Reading Coal and Iron Co., located a short distance from the town of Schuylkill Haven, Pa. This is what is known as a side-hill storage yard, and has a capacity of 1,000,000 tons. While it is not possible to state the average daily receipts and shipments to and from this yard, it may be said that the maximum receipts in one day have been 7,870 tons and the maximum shipments 10,195 tons.

Although it has been stated above that the capacity of the yard is 1,000,000 tons, this does not signify that this amount of coal will be handled in any one year. Even during the summer, when production is usually so much in advance of demand that coal is, in general, being stored, the demand for certain grades of coal might be such that the mines would be unable to fill their orders, and, in consequence, resort for such sizes would have to be made to the storage yard. The total shipments during the entire year might exceed 1,000,000 tons, or on the other hand they might not equal this figure.

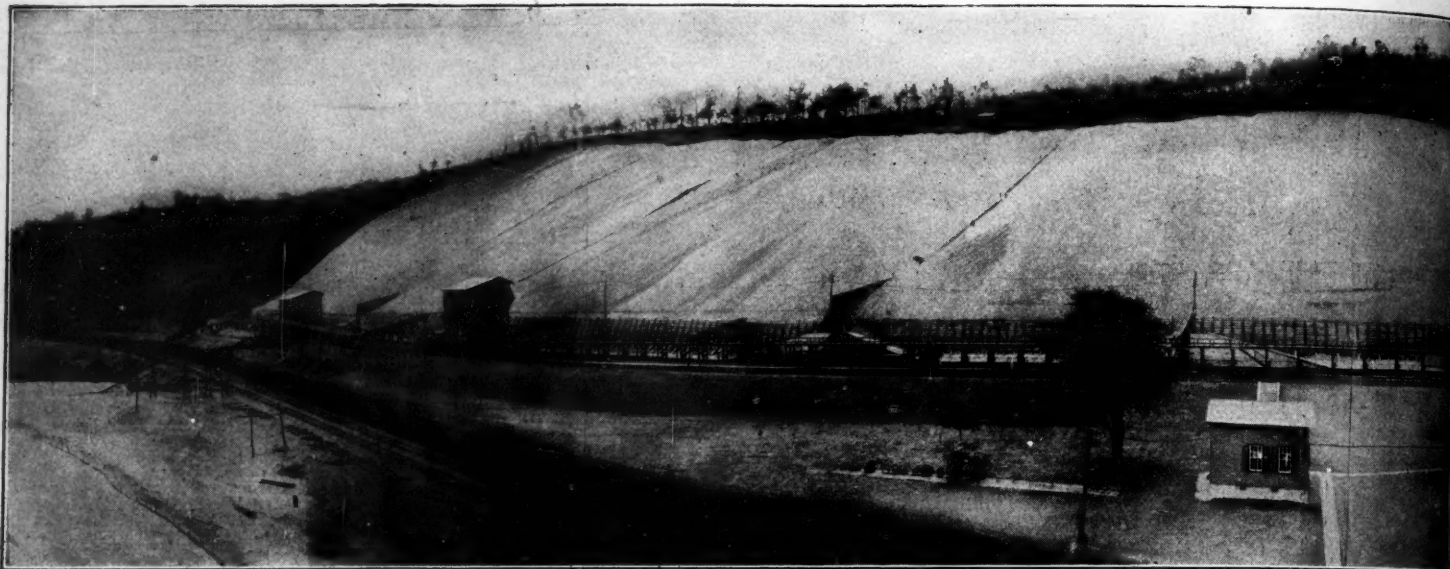
Coal is brought to this storage yard in railroad cars which are placed upon the track on the upper side of the yard immediately above the place at which it is to be stored. From this point the coal is dumped directly into the pocket and when necessary is washed through steel chutes to its proper place therein. Different sizes of coal are kept separate by means of wooden partition walls, extending down the hill and transversely across the storage yard.

No permanent retaining walls are built to keep the coal in place, but temporary structures of this kind are erected that keep the coal from overflowing the limits of the pocket. These walls also greatly increase the capacity of each individual inclosure. They are often constructed as high as 16 ft.

Coal is removed from storage in either or both of two ways. Small sizes, such as rice and barley, when the bank in the pocket is high, may be washed through chutes directly into cars that are placed upon the track that skirts the lower edge of the storage yard. When such coal becomes low in the pocket it is washed to an elevator, by which it is deposited in the car.

If the coal is of a larger size, such as egg, stove, chestnut, pea or buckwheat, it is necessary to rescreen the material before it is shipped, thus removing the undersize resulting from breakage. In this case the coal from the pocket is washed to a scraper conveyor and taken to one of the screening houses, of which there are four. It is here elevated to the top of the house by means of a 36-in. bucket elevator, which delivers the coal to a shaker screen and it is resized. The resized products then pass for shipment to their proper pockets in the screen house, while the fine material is deposited upon a slush bank.

Besides handling material to and from the storage yards the company at this point also prepares coal from various culm banks, isolated but not remote. This material is brought to the storage yard in railroad cars and dumped into a pocket directly opposite the breaker. From this point it is conveyed to the top of the building by a dragline conveyor and is prepared by jigs and screens, the clean coal going to



SCHUYLKILL STORAGE YARD TAKEN AT THE HEIGHT OF THE

This yard has 16 main compartments with a maximum capacity of 1,000,000 tons of coal. Some of the separating walls can be readily seen but others where two sizes are stored

in adjacent pockets are suffered to be wholly covered by dumped coal. At the time that this photograph was taken about 860,000 tons of coal were in the yard. The unused

capacity can readily be seen, as the ends of the separation walls of such pockets near the bottom of the hill are not covered by a mantle of coal as are the others. In the

the various pockets in the breaker and the rock to a rock dump. The breaker is so arranged that it may be used solely as a screen house, the coal going direct to the pockets for shipment being bypassed around the jigs by a system of chutes. Thus one building serves two entirely distinct purposes.

The plant at Schuylkill Haven is about a mile long and comprises 16 pockets, built to accommodate different sizes of coal. Such sizes as do not require reparation before shipment are usually stocked in the pockets farthest from the screen houses, thus allowing the larger sizes to be stored in compartments adjacent to the screening plants. This reduces the distance over which any size must be handled, and

consequently the degradation of the coal. Of course, a large amount of water is required in the operation of this plant, as the transference of the coal from place to place is largely secured by hydraulicking methods.

The supply in this case is secured from Mohannen Creek, the pumping station being located about a mile below the storage piles. The water is forced from the station by two pumps having a capacity of 1,200 and 1,400 gal. of water per minute. These pumps are of the centrifugal type and are electrically driven. The main pipe line is 12 in. in diameter and discharges into a small reservoir near the power house which has a capacity of 180,000 gal.

Thence the water is forced by a Jeanesville pump to

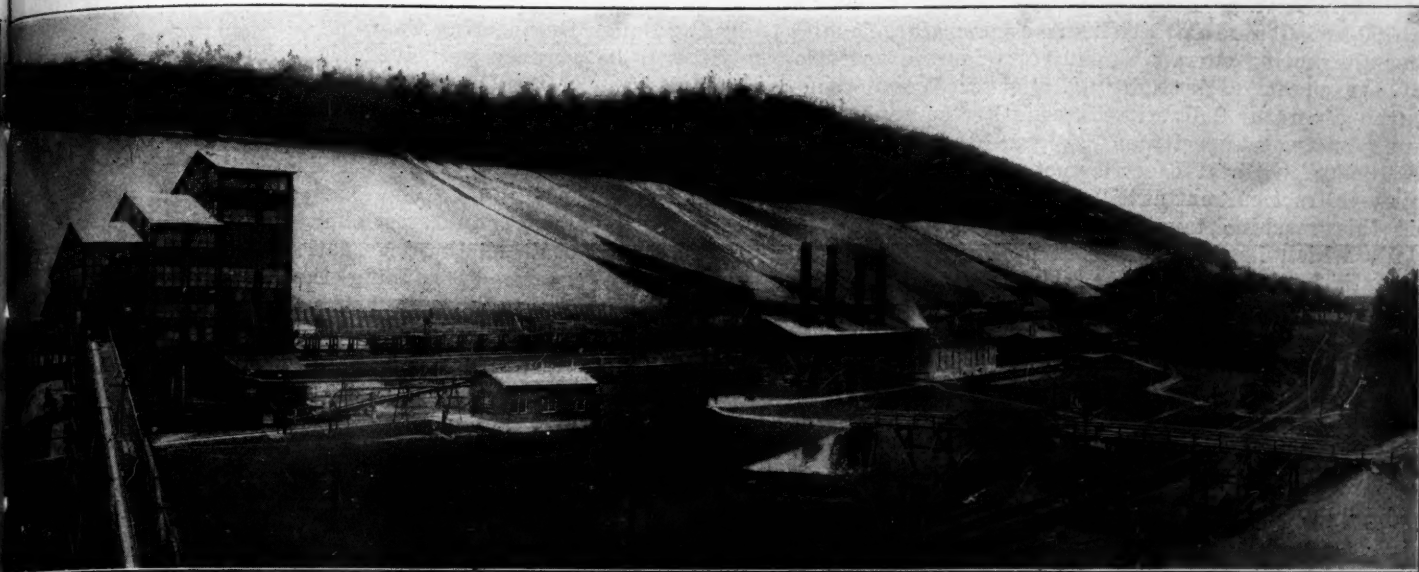


SCHUYLKILL STORAGE YARD IN THE WINTER

This shows the storage yard at a time when the stocks of coal have been reduced to approximately 300,000 tons. As a result of this depletion the separating walls of wood

between the open side-hill pockets can be readily seen passing like huge snow-fences from railroad to railroad dividing one size of coal from another. The large coal banks

shown at the extreme end of the yard consist of fine coal. The larger sizes are dumped within easy reach of the rescreening and breaker house, which is shown in the middle



SUMMER SLACKNESS—ITS MAMMOTH POCKETS ARE ALMOST FULL

middle foreground is the breaker. To the right is the boiler house and immediately to the right of this is the power plant. At the extreme left are the screen houses while im-

mediately under the trestle along the bottom of the coal piles will be seen the conveyors and on the top of this trestle will be seen one of the water supply lines, which during

the winter is kept hot and so can be used to thaw the frozen coal for hydraulicking. Note the barricade at the foot of the coal slope, which is described on page 599 of this issue.

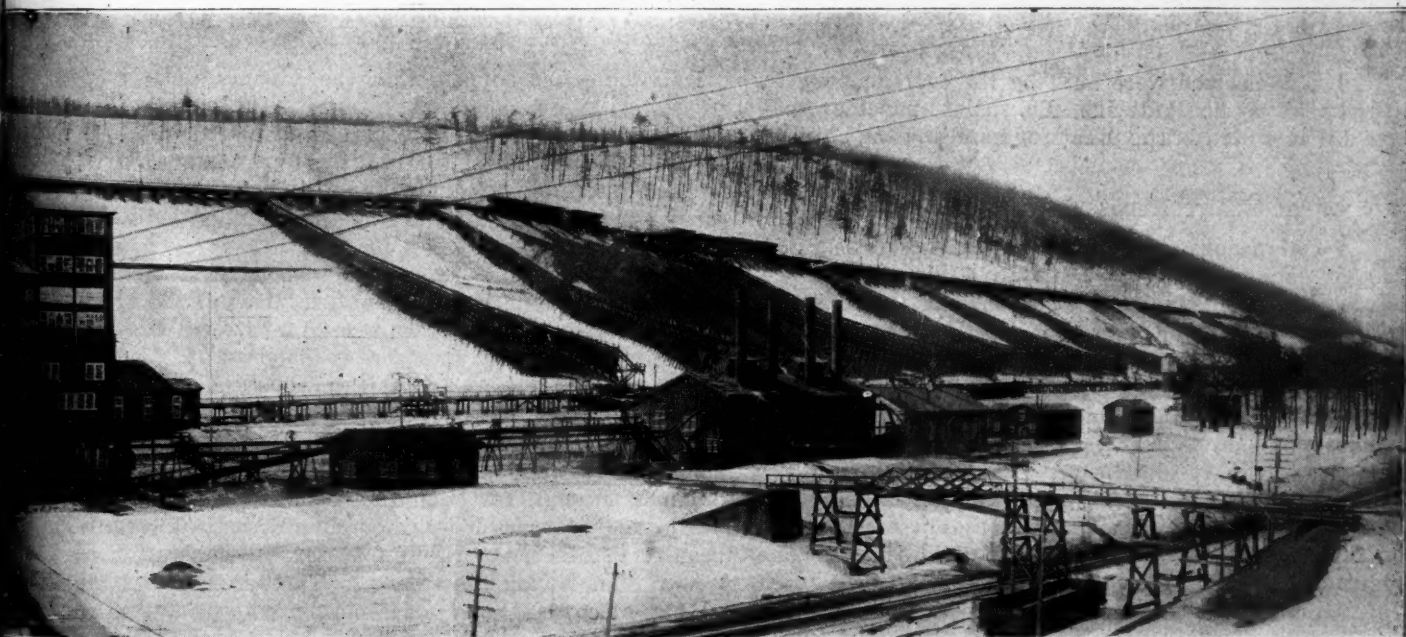
all parts of the plant. An 8-in. pipe line skirts the lower edge of the storage plant while a 6-in. line is laid along the upper side. The water from these pipe lines is used for hydraulicking the coal into place in the pocket or for washing it down the chutes to the cars or to the elevators or draglines, as already referred to.

Since coal in the pocket is liable to freeze during severe weather, it is necessary to make provision for thawing this material so that it can be loaded out from storage. This is accomplished by heating the water used for hydraulicking. To this end the water flowing through both the upper and lower pipe lines is heated in the power house to a temperature rang-

ing from 115 to 120 deg. F. Although the pipe lines are uncovered and carried upon trestles, the temperature of the water in the remotest parts of the line even in severe weather is usually about 83 deg. F. By this warm water the coal to be reclaimed from storage, even though frozen solid, is quickly thawed out and washed down the chutes to its destination at the lower edge of the yard.

In addition to the water supply already referred to, water for drinking purposes is also furnished. This is secured from a horizontal borehole 800 ft. long, near the top of the mountain, and is piped to all parts of the plant.

The power plant at this storage yard is a concrete



WHEN THE SUPPLY OF COAL HAS BEEN DEPLETED

foreground, as it is necessary to rescreen the larger sizes of coal, which, owing to their storage, have been subject to degradation. The difference of elevation of the unloading

and reloading tracks is 154 ft. at the breaker house. While the cars just above the breaker are unloading culm, those immediately to the right are unloading pea coal, for which at

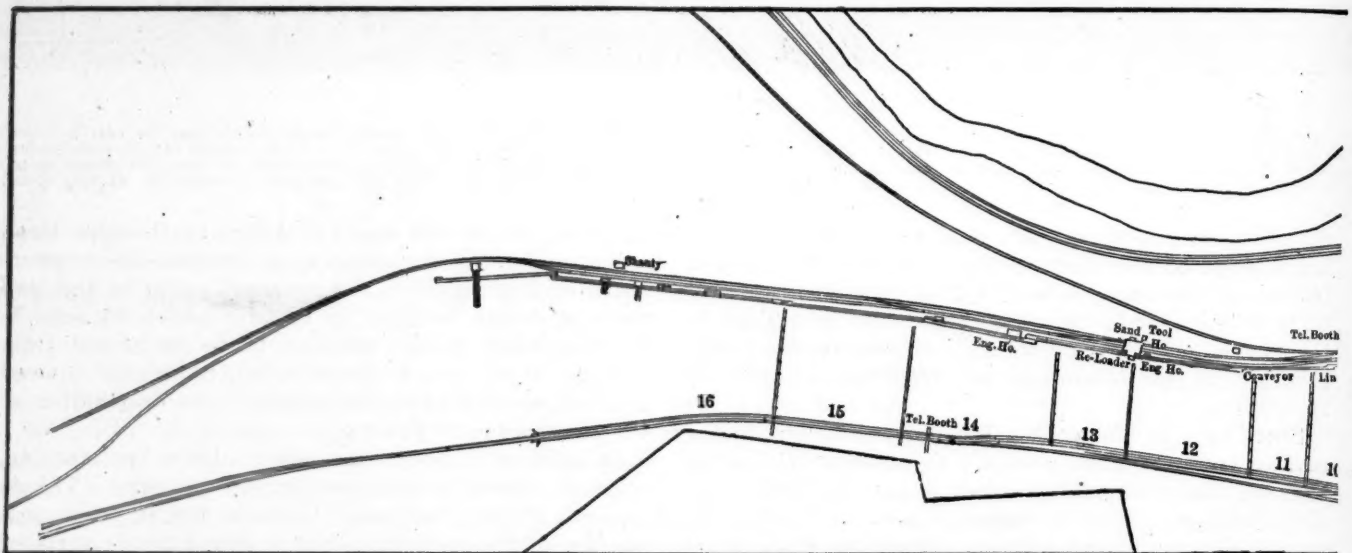
the time the photograph was taken there was a lack of orders. To the left of the center bridge can be seen a long flume which conveys the slush to a slush bank.

structure with an asbestos-covered roof. It contains a 500-kw. General Electric turbo-generator, furnishing alternating current at 440 volts for the operation of the plant. For lighting, another Westinghouse turbo-generator delivering alternating current at 440 volts, having a capacity of 125 kva., has been installed. A 125-kw. General Electric motor-generator set furnishes direct current at 250 volts. The motor element of this machine takes alternating current at 2,300 volts which has been stepped up from the 440-volt potential at which it is generated. High-tension current also operates the pumps at the pumping station.

In addition to these units there is also installed a Jeanesville pump having a capacity of 150 gal. per minute which supplies the yard and two boiler-feed pumps as well as two pumps supplying the breaker. These latter machines are identical in size, being

floors and has a capacity of 520,000 tons. It was built by the Dodge Engineering Co.

It will be at once perceived that the expense of such storage yards as those above described is great both as regards installation and operation. The matter of wages alone amounts to a considerable sum. An average of 85 men per day at the Schuylkill Haven plant makes a payroll of \$100,000 a year or more. To this must be added the interest charge upon the value of the stored coal and the degradation of the fuel as well as the expense of running the machinery and heating the water in winter. These latter figures are difficult to estimate. Another item of expense is the freight involved in bringing the coal from the mines to the storage plant. This varies considerably with the distance the coal is transported. The shortest haul to the Schuylkill Haven plant is about eight miles and the longest is approximately 40 miles.



PHILADELPHIA & READING COAL AND IRON CO.'S

With a storage capacity of 1,000,000 tons of coal this yard is one of the largest storage yards in this country. Sixteen large open pockets are provided for handling the different sizes of coal. The yard has a total length of one mile. The coal is dumped from railroad cars directly into the pockets on the uphill side

6 x 10 x 12 in., and were built by the coal company in its own shops at Pottsville, Pa. A 13-panel switchboard is installed in the plant for handling the electric current.

STORAGE PLANT NEEDS 85 MEN TO OPERATE IT

The boiler house contains four Stirling boilers of 300 hp. each, making a total of 1,200 hp. These are hand fired with fine coal produced in the breaker, which fuel is conveyed to the boiler house by means of a dragline scraper.

On an average throughout the year 85 men are employed to operate this plant. The maximum number of hands employed was 125, while the minimum during the extraordinary conditions prevailing during the recent war was about eight men, the plant at this time being practically abandoned. During one of the years of the conflict only 26,000 tons passed through the plant.

In addition to this storage yard the Philadelphia & Reading Coal and Iron Co. has a second plant, known as the Bridgeport Transfer. This yard is of an entirely different design, as may be seen in one of the accompanying illustrations. It is provided with eight

of the yard, and the coal is handled by hydraulicking in the pockets and from the pockets, to the railroad cars, for reshipment. Four rescreening houses reprepare some of the coal before it goes to the market. Pocket No. 4 is used for the dumping of the culm from isolated banks, where it is retained for preparation in the

It is logical to suppose that the advantages derived from storage are commensurate with the expense involved. It is doubtful, however, if all the advantages secured can be measured accurately from a strictly financial standpoint, and the element of increased service to both the miner and the public must be taken into consideration.

It might be well, however, to take up first the financial phase of the storage problem. How is the operator benefited financially by storage? It will first be necessary to consider how coal is disposed of. Coal is sold through agencies and sales offices, and at certain times there is a greater demand than at others. In the winter, for example, there is a strong demand for prepared sizes, that is domestic coal, while in summer the call for such fuel falls off considerably. Then again in cold weather manufacturing plants require greater amounts of fuel for the generation of power than during the summer. Furthermore, heating plants, of course, are always most anxious for coal in the winter, but unfortunately despite these facts the capacity of a mine is lower in winter than in summer, because of the difficulties in operation and transportation.

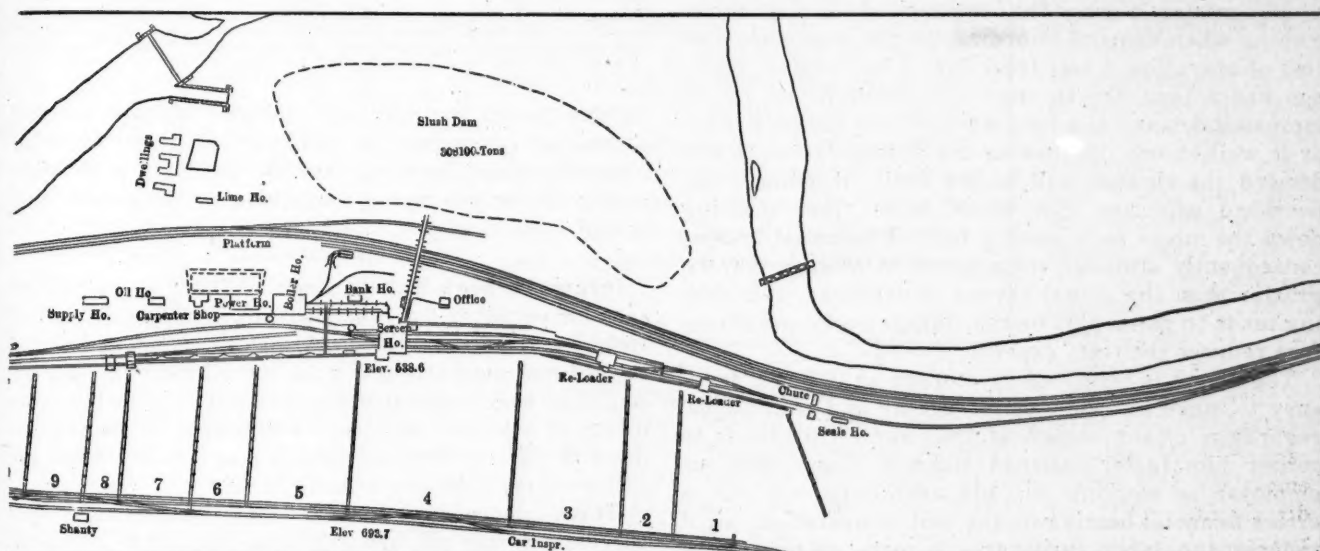
Production thus tends to decrease just when the demand increases. This is most acutely felt in the prepared sizes and in some instances in buckwheat, but it is not particularly troublesome in the case of the smaller sizes, which are used for fuel purposes exclusively.

On the other hand in the summer the demand for the larger coal is small, but in order to produce the sizes to fill fuel contracts the mines must operate, and if the orders for coal cannot be evenly distributed throughout the various grades one of three things must occur: (a) The larger coal must be crushed down to the smaller sizes. (It is impossible to consider this method because of the great difference in price between the large and small sizes of anthracite.) (b) The mines must shut down and production of coal cease or (c) Those sizes for which there are insufficient orders must be stored.

that is periodically forced to shut down, soon gets a bad reputation, and it is difficult to hire men when, at last, orders are such that the company again becomes desirous of operating.

Another loss that the operator would sustain is that of his contracts. If he cannot fill a contract he must lose it, and if he escapes without a lawsuit for damages he is lucky. Furthermore, violation of a contract or its non-fulfillment renders the consumer timid about placing new orders with the producer, lest those orders should, similarly, fail of fulfillment. This naturally increases the difficulty experienced by the producer in disposing of his product.

The loss occasioned by a shutdown of the mine is one of which the public must assume a portion. If a mine with a certain output ceases operations, this decreases the amount of fuel placed upon the market, thus lessening the visible supply. When the demand



SCHUYLKILL HAVEN SIDE-HILL STORAGE YARD

breaker-screenhouse. The slush bank does not have to be held by walls or barricades. A low embankment about a foot high is built of dirt, and later the necessary height is secured by throwing dried slush on the top of the earth. This slush acts as a filter and permits the water to percolate through it and pass

Since the first condition is impossible of fulfillment it is unnecessary to consider it further. If the mines are shut down huge losses will occur, one of which arises from a continuance of overhead expense. This cannot cease, since it is necessary to continue ventilation and pumping in order to avoid irreparable damage. Repairs must be kept up whether the mines run or not, and, as for the machinery, it must be remembered that it frequently deteriorates quite as rapidly when idle as when in operation. Monthly men must be kept on the payroll as well as some of the day laborers. The interest charge on the investment continues, as does also the depreciation. The Government, furthermore, does not reduce taxes on an idle plant. In other words everything will be going out and nothing coming in under such circumstances.

This condition may last only a day or two or may continue for months. Shutting down the plant causes a loss to both the miner and laborer, which means that their work and with it their incomes cease. If such a shutdown were short, the men probably would stay at the plant, as they would wish to avoid the expense of moving from place to place, but if long continued, they would be compelled to move or starve. A mine

away. The material is easy to handle because the volume of slush to be deposited is not large. As a result the slush in the bank is in all stages of dryness dependent on the length of time it has been deposited and some of it is always in condition to act as a low dam.

increases this means that the price must increase, because price depends upon supply and demand. The closing of a single mine will not, of course, appreciably affect the market, but it frequently happens that many operations are simultaneously closed down tight, while others work only part-time. As far as the public is concerned it can relieve this situation to some extent by so regulating its demands that they will be more evenly distributed throughout the year. Thus the consumers might place their orders in the summer, when the demand is low, and lay in a winter's supply of fuel, thus making the consumers' cellars the storage yards of the country.

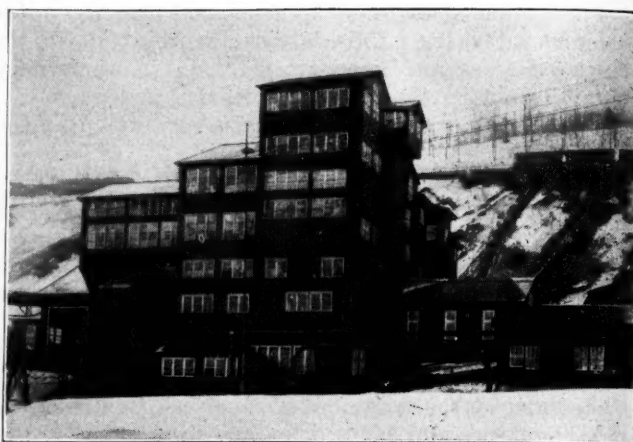
Only the last alternative remains for consideration. How does the storage of coal affect the operator, the employee and the public? As previously stated, the demand for coal is not regular but highly intermittent—greater in winter than in summer, although even in winter the demand is not uniform, frequently being insistent for certain particular sizes, while for others it may be almost nil. Individual mines cannot store their output since it would require too much space, and the cost of storage at any individual plant would run into prohibitive figures.

A large mining company, on the other hand—one operating a large number of mines—can resort to commercial storage with good results. The cost of operation of such a storage plant when distributed to a considerable number of mines, each having a large output, is not excessive, and the savings resulting from continued working of the mines will aid to a large extent in paying the cost of operation of the storage plant.

The benefits of storage are threefold—(1) Continuous operation of the mine; (2) Ability to produce coal for which there are no existing orders; (3) Opportunity to ship to the consumer those sizes which he requires and to ship to the storage yard those sizes for which orders are lacking, until a demand for such sizes of coal may be developed.

Continuous operation of the mines has a strong influence upon the price of coal, permitting the output to be greater during the summer or during those months when demand is ordinarily flat, but when the cost of operation is less than during the winter. Storage has a tendency to meet the requirements of an increased demand at a time when it is at the peak, and, as is well known, the nearer the supply comes to the demand the cheaper will be the coal. It reduces the overhead expenses that would arise from shutting down the mines because of a lack of balanced orders, consequently although the expense of storage may be greater than the actual saving in overhead, this saving tends to pay a part of the storage costs and therefore reduces the total expense.

The miner is benefited by storage as it has a tendency to make his work more regular and continuous, regardless of the season of the year. This tends to render him better satisfied since it shows that his employer is working for his advantage. It has a direct financial bearing on the cost of operation, for it reduces the labor turnover. A more efficient mine force is assured when men are retained long enough to become familiar with the work at the mine at which



SMALL COMBINATION BREAKER FOR CULM AND RESCREENING HOUSE FOR STORED COAL

This breaker serves for the preparation of the culm from a number of nearby waste banks and for the rescreening of the stored coal without further preparation. In the background will be seen railroad cars dumping culm for preparation in the breaker.

storage yards, as built and operated by the various anthracite companies, do not pay a direct financial return to their owners, they do perform a definite service to the producing companies, to the public and to the mine worker.

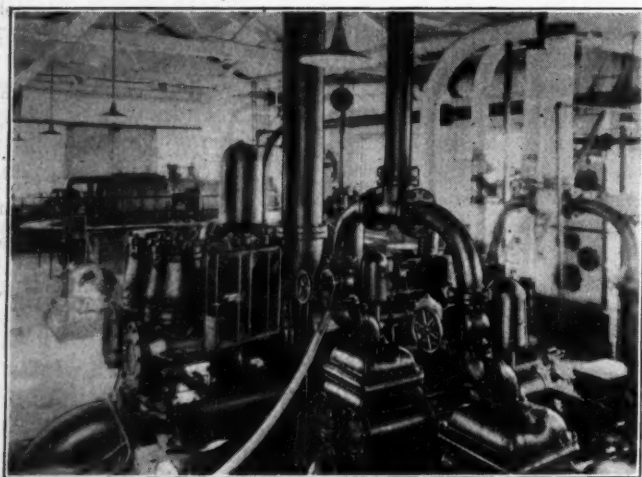
Injury Through Fall of Rock.—Where a coal miner sued his employer for injury sustained through a fall of rock in an entry, and the employer relied on a claim that the injured man was guilty of contributory negligence in failing to discover that the roof was in defective condition, or assumed the risk, it was proper to receive evidence at the trial showing existence of a smoky condition in the entry, following a firing of shots.

This evidence was admissible as tending to show that the danger was not apparent and was hard to detect. (*Arkansas Supreme Court, Smith vs. Southern Anthracite Coal Mining Co., 215 Southwestern Reporter, 719.*)

Contracts to Sell Coal in Place.—If a consideration be paid for an option to buy coal in place, with a time limit fixed for exercise of the option, it cannot be withdrawn during that period without consent of the option holder. But if no consideration be actually given for the option, although one be recited in the contract, it is subject to withdrawal any time before acceptance. However, if the holder exercises the option before its withdrawal, a binding contract of sale results.

The holder of an option to buy coal in place will not be denied the right to a court decree requiring the other party to convey in accordance with the accepted terms of the option on the ground that the holder has invested nothing, being a promoter who would not have accepted the option except for having obtained a purchaser to whom he can sell the coal at a profit.

But a decree requiring conveyance under an accepted option will be denied where the option provides for a warranty deed containing provisions used for similar property in certain counties, and the evidence shows that there is no established and uniform form of deed so used, and where the option holder has not waived, as he might, any further provision than for an ordinary warranty deed. In such case there is no sufficient agreement as to the character of deed to be given. (*Illinois Supreme Court, Threlkeld vs. Inglett, 124 Northeastern Reporter, 368.*)



INTERIOR OF SCHUYLKILL POWER PLANT

Showing the turbo-generator in the rear and the large Jeanesville pump which supplies the plant with water in the foreground. Large quantities of water are used, for the coal is moved from place to place largely by hydraulicking methods.

they are employed. When the men are constantly changing from place to place, because of the slack work afforded at various times during the year, little dependence can be placed in their efficiency.

Therefore the conclusion is obvious that although

Hydrocarbon Gases Found in British Columbia Mines

BY JAMES ASHWORTH*
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IN THE report of the Minister of Mines for 1918, many pages are devoted to the subject of "Mine-Air Sampling," in both coal and metal mines. Perhaps, the most unusual feature appears on page 336 of the report, in giving the analysis of a sample of air that was probably taken in the Beta Tunnel of the Britannia mine after blasting, although it is not so stated.

According to the analysis given, this sample of air contained 0.11 per cent carbon monoxide, which alone would mean a dangerous condition; but, besides, there is present in this air 0.73 per cent carbon dioxide, while the oxygen content is given as 19.49 per cent and nitrogen 79.67 per cent. A most notable feature is the presence of a "trace of ethylene" reported in this sample.

The chief inspector of mines, George Wilkinson, reports, page 319, the taking of 510 mine-air samples during the year, many of which were obtained from the mines of the Crow's Nest Pass Coal Co., adding further that much valuable information regarding the outflow of gas from coal seams and the effect of breaking the coal was secured.

It was claimed by the officials of the Miners' Union and the men that the adoption of a single-shift system would lower the flow of gas in these mines. In order to prove or disprove this claim many mine-air samples were taken during the months of April, May and June, 1917, when the mines were idle in the Crowsnest district. These samples were taken regularly each month to determine what outflow of gas took place while no coal was being mined. The results obtained were surprising, frequently showing as large a flow of gas from the coal at the end of 70 days as when the mine was being worked.

ANALYSES OF MINE AIR TAKEN TO SHOW OUTFLOW OF GAS UNDER VARYING CONDITIONS

It is of interest to note the seeming discrepancy regarding the volume of methane generated, per ton of coal mined, as recorded in the last column of the table giving the data for the Corbin Colliery, p. 330. Comparing the results shown in the first two tests at this colliery when the same tonnage was mined, the outflow of methane is given as 362 cu.ft. per ton in the first test (Jan. 8), the percentage of methane in the sample being 0.53 per cent, and the reading of the barometer 24.5 in. In contrast with this, the second test (March 26) gives the outflow of methane as 749 cu.ft., per ton of coal mined, the percentage of methane in that test

being 0.50 per cent, and the barometric reading 24.7 in.

The reason for this difference is not apparent, although we note the temperature of the first test was 50 deg. F., and advanced in the second test to 64 deg. F. In these tests the outflow of methane per min. is given as 63 cu.ft. in the first test, and 130 cu.ft. in the second.

Much the same condition is shown in the Michel Col-

liery when comparing the two tests taken May 9 and Aug. 10, respectively, p. 329, the output for this air split being 200 tons on each date. The first of these two tests showed 1,173 cu.ft. of methane generated, per ton of coal mined, the percentage of methane in the sample being 1.78 per cent, and the barometric pressure 25.9 in., temperature 53 deg. F. In contrast with this the sec-

ond test showed 2,354 cu.ft. of methane generated, per ton of coal mined, the methane then being 1.81 per cent, barometric pressure 25.6 in., temperature 55 deg. F. The outflow of gas in the first test was 163 cu.ft. per min., and that in the second test 327 cu.ft. per min.

MUCH METHANE IS TRANSPIRED

At Coal Creek, p. 327, a test taken in No. 1 East Mine, main-return airway, Jan. 24, when 600 tons of coal were mined, gave 3,712 cu.ft. of methane generated, per ton of coal mined, the methane being 1.28 per cent, barometric pressure 25.7 in., temperature 49 deg. F. A second test taken (July 23) in the same airway, when 500 tons of coal were mined, showed 5,120 cu.ft. of methane generated, per ton of coal mined, the methane being 1.27 per cent, barometric pressure 25.9 in., temperature 56 deg. F. In the first of these tests the volume of methane generated was 1,547 cu.ft. per min., and that in the second test 1,778 cu.ft. per min.

I will cite but one other instance along this line, namely, the two tests, p. 328, taken July 12 and Aug. 6, in the south level split of No. 3 mine, the coal mined being 200 tons and 220 tons, respectively. The first of these tests showed 7,704 cu.ft. of methane generated per ton of coal mined, the proportion of methane being 0.57 per cent, barometric pressure 26 in., temperature 59 deg. F. The second test showed the volume of methane generated as 3,888 cu.ft. per ton of coal mined, the amount of methane being 0.61 per cent, barometric pressure 26 in., temperature 58 deg. F. The gas generated in the first instance was 107 cu.ft. per min., and in the second instance 108 cu.ft. per min. These citations show that the production of methane does not depend entirely on the amount of coal displaced.

Interesting facts relating to the outflow of gas into the mine, as influenced by periods of idleness and periods when the mine was working normally. These facts were determined by the results obtained in an extended series of analyses of mine air carefully taken, at different times, and analyzed in the laboratory, under the direction of the Minister of Mines, and tabulated in his Annual Report for the year 1918.

*Consulting Mining Engineer, Livingstone, Alberta, Canada.

Quoting from p. 320 of the report, the following statement is made:

In No. 1 South Mine there is an increase of 0.22 per cent in 21 days, with the mine idle and the same quantity of air passing, and a decrease is shown when the mine is operating again, during the first nine days, with the same quantity of air passing.

The report continues, p. 321:

From the results obtained it would appear that the breaking of coal has not much bearing on the gas flow in these mines, and from the results shown in the returns from samples taken every two hours, it is apparent that the conditions are not changed by the working of two shifts, the maximum raise at any time during the 24 hours being less than 0.3 per cent, while samples taken every half-hour, in No. 3 mine, showed a maximum raise of a little over 0.5 per cent.

There is no doubt that a single shift inaugurated in some of the Crownsnest Pass mines would have very beneficial results on the dust conditions, and in any mine beneficial results for the prevention of accidents due to other causes at the working faces.

This last statement will not meet with general approval, since it is quite commonly held that the more quickly a working face is advanced the more safely the work is performed, in respect to accidents due to falls of roof and coal.

Robert Strachan, senior inspector of mines for the East Kootenay district, in his report, p. 447, states, "Since the resumption of work after the idle time, it has been very hard to obtain a fair test made of the outflow of gas under the single-shift conditions," but adds, "It has at no time reached the height shown under the double-shift system." Mr. Strachan says further: "Twice during the year has methane been reported as found in the analyses, both cases being in the High Line split of No. 2 mine, Coal Creek, Sample No. 308 showing 0.13 per cent, and Sample No. 396, a trace, while in some cases of blowout we have recorded 84 per cent of methane and no trace of ethane."

In his second report on the No. 3 explosion at Coal Creek, George Wilkinson, chief inspector of mines, remarks as follows, p. 347:

Mr. Lane, who worked in the main level, stated in his evidence given at the inquest that on the morning of April 5, when he went in his place, there was a $\frac{1}{2}$ -in. gas cap in it and this was gradually increased to $\frac{3}{4}$ in., at the end of the shift. He also stated that this was no unusual condition, since the double shift was put on. (The double shift was put on to place the men thrown out of work by the "bump" in No. 1 East Mine last November.) He also admitted that Inspector O'Brien had withdrawn him, owing to there being a 1-in. cap of gas in the air. Lane, who is an old experienced miner, had worked for many years as a fireboss.

METHANE INCREASES WITH COAL BROKEN DOWN

This reference of the chief mine inspector, notwithstanding his previous conclusion to the contrary, p. 319, would seem to support the alleged claim of Inspector Strachan that a series of tests made in one of the mines showed that the production of methane increases and decreases directly as the work of breaking down the coal. The presence of the $\frac{1}{2}$ -in. gas cap referred to in the Lane evidence was confirmed by the examination of the place by the district inspector, the morning of the explosion.

To understand better the situation regarding the explosion in the No. 3 mine, at Coal Creek, it is necessary to note the statement made in the chief inspector's second report of this explosion, page 348, where he states:

From evidence given at the inquest, it was brought out that almost continuously for 30 days there had been from a half to a three-quarter inch gas cap present in these places. At the time of the inquest it was taken [for granted] that a half-inch gas cap was equal to $2\frac{1}{2}$ per cent of gas. From experiments made since in measuring flame caps and taking samples for analyses, and checking with the Burrell gas detector, it has been proven that a quarter-inch cap, in the Wolf safety lamp is equivalent, to $2\frac{1}{2}$ per cent of gas, and that a one-half inch cap equals about $3\frac{1}{2}$ per cent.

Following this statement, the chief inspector concludes that "If there was a three-quarter inch cap at the end of the morning shift, there must then have been upwards of 4 per cent in the current."

The chief inspector's report also shows, p. 348, that the district inspector had realized the danger of the double shift before the explosion occurred, and had suggested to the management "that only one shift of 8 hours out of the 24 be worked." This important suggestion of the chief inspector would appear to be ample justification for the adoption of the single-shift system, under the conditions stated. The suggestion is also supported by the senior district inspector and the officials of the Miners' Union, p. 319.

Referring to the explosion in No. 3 East Mine at Michel, Aug. 8, 1916, the senior inspector reiterates his opinion, p. 446, that the explosion originated in No. 17 room, No. 6 East Level, and was caused by the "ignition of gas at a defective lamp, the coal dust on the roadways and sides propagating it throughout the mine." He concludes his suggestion relating to mine accidents with the following statement, p. 448:

In dealing with these blowouts or "bumps," the greatest danger, now that electric lamps are in use, is the likelihood of the workmen getting overcome by gas and asphyxiated, and I should like to suggest that investigation be made along the lines of either solving the problems or providing mine-safety apparatus for each individual workman employed in suspected areas.

Regarding the procedure permitted where electric lamps are used by the miners, neither the chief nor the senior inspector mentions how a miner examines his working place, as required by the rules; or whether the miner has any knowledge of his place being clear of gas while at work. This is an important matter, as the number of electric lamps in use at the end of 1918, in the province, was 2,665, or over 61 per cent of the total number of lamps in use. It is a matter of regret that the inspector does not explain in what way the lamp that caused the explosion was defective, and whether the defect should not have been detected before the lamp was given to the miner.

Before closing allow me to quote a paragraph from the report of the chief inspector of mines, p. 337, which reads as follows:

From the evidence brought out at the inquest, in connection with explosion at No. 3 Mine, Coal Creek, and the subsequent tests made regarding the percentage of methane in the air cur-

Controversy regarding the danger of double-shifting the mines in the Crownsnest district hinged largely on the question as to whether the generation of gas, in the mine, increased with the amount of coal broken, as claimed by the Miners' Union. Statements of the senior inspector of mines and of the chief inspector, appearing in the report on the No. 3 mine explosion, Coal Creek, seem at variance with the conclusions of the chief inspector, who recommends a $2\frac{1}{2}$ per cent withdrawal limit to be embodied in the Coal Mines Regulation Act.

rent, [and its relation] to height of flame cap on a safety lamp, it is apparent that some rule should be embodied in the "Coal Mines Regulation Act," compelling the withdrawal of men when the percentage reaches a fixed quantity. The limit set by the British Act is $2\frac{1}{2}$ per cent. A rule has been established by the management of the Crowsnest Pass Mine, at the suggestion of the Mines Department, to the effect of establishing the withdrawal percentage at $2\frac{1}{2}$ per cent or $\frac{1}{4}$ -in. gas cap, but this rule should be embodied in the "Coal Mines Regulation Act."

It is with some satisfaction that I read this recommendation of the chief inspector, which follows up my own suggestion regarding the need of more exactly defining what is understood in the reports of "Gas" by firebosses, made in my own report on the Reserve Mine explosion of May 27, 1915, which report will be found on pp. 352-363 inclusive of the Annual Report of the Minister of Mines, 1915.

In transmitting my report to the Minister of Mines on that occasion, I inclosed a print of the card issued by the British Home Office, relating to the matter of reporting gas. Similar cards were issued by Sir Richard McBride, and the first of these were in the hands of the officials at Coal Creek as early as 1911; but no official ruling or alteration was made in the British Columbia Mines Regulation Act and, to the best of my knowledge, no provision of this nature is made in any act or rule to enforce its observance.

The chief inspector includes among his recommendations, p. 338, the request that there be placed a limit on the percentage of gas allowable in the mine air when blasting is permitted. It appears further that he is not satisfied with the "standardization of the ventilation in mines as to what an adequate amount of ventilation means" in the reading of the Coal Mines Regulation Act.

Mining men will quite generally agree that these are important matters and should be clearly defined so as to leave no room for doubt. Permit me to express the opinion that few will agree with the views of the chief inspector on standardization, if it is his meaning that the provisions of Rules 1 and 2, Part XI, of the Coal Mines Regulation Act, is not sufficiently explicit when they read as follows:

RULE 1: Every mine while being worked shall be thoroughly ventilated and furnished with an adequate supply of pure air to dilute and render harmless noxious gases to the intent that the working places of the shafts, levels, stables and workings of such mine, and the underground traveling roads to and from such working places shall be in a fit state for working and passing therein.

RULE 2. An adequate supply of pure air shall mean not less than 100 cu.ft. per min. for each man or boy, and not less than 300 cu.ft. per min. for each horse or mule employed in a mine, and as much more as the inspector of mines may direct, which shall sweep the face of each working place, and a notice stating the quantity of air required shall be kept posted at the mouth of the mine by the inspector of mines whenever he directs that more air should be furnished in a mine.

At the inquest, following the Mine No. 3 explosion, no one was found willing to justify the presence of gas, which was admitted to be in excess of the minimum ventilation required by Rule 2 to which I have referred. If this rule authorizes the inspector to require any amount of air that his judgment may dictate for the safe operation of the mine it does not appear to me that the rule requires any alteration. However, it has been the custom for many years, in British Columbia, to use the words "explosive gas," in making out a report, instead of the words used in the Mines Regulation Act, "inflammable gas."

That being the case, it may be claimed by the mine inspectors that the danger point is not reached until explosive gas is found. In concluding, allow me to state

that a Davy lamp will pass flame in about 11 sec., in an air current containing 4 per cent of methane and having a velocity of 6 ft. per sec., whenever there is coal dust in the air to the extent that this small velocity will raise the dust from the floor without artificial means being used to disturb it.

Nottinghamshire Coal Fields

BY MARK MEREDITH
Liverpool, Eng.

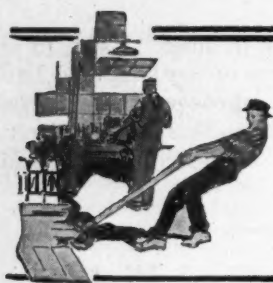
For some time boring operations have been in progress beyond the eastern border of the present known coal field in Nottinghamshire, England, with the object of proving, if possible, an extension of the valuable beds now being worked. This exploration and research work is being carried out entirely by private enterprise, the Butterley Co. and the Stanton Ironworks Co., Ltd., who own collieries nearby, taking a prominent part in this important undertaking.

An important discovery has now been made. The top hard bed has been reached at the boring at Boulton, about two miles east of Ollerton in the Dukeries. The bed is here nearly 2,000 ft. deep. The thickness of the seam is not known. Reference was made to the further development of the Nottinghamshire coal field at a meeting of the Midland Counties Institution of Engineers at the University College, Nottingham, on Nov. 22 last.

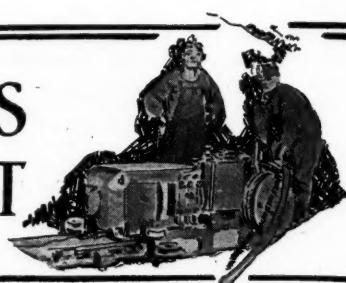
G. A. Longden, prior to reading a paper on "Recent Borings in the Nottingham Coal Fields," made reference to the absence of H. E. Mitton of the Butterley Co. He stated that Mr. Mitton was detained at the boring operations at Boulton, which place he himself had left to attend that meeting. The paper read by Mr. Longden contained notes on the strata which had been proved by the three borings carried out for the Stanton Ironworks Co., Ltd., at Kirklington, Nilsthorpe and Wellow. In the Kirklington boring, which was commenced on April 24, 1915, gas was given off at a depth of 1,911 ft., indicating the presence of a coal bed. At the Bilsthorpe boring, which is upon Lord Savile's property, it was found that the coal measures above the top hard bed were considerably less in thickness than they were at the adjoining colliery of Rufford. The bore hole at Wellow was the first to be made to the east of Bentinck and Kirkby collieries, where lower mines had been proved. This showed that three at least were good, workable beds extending over a large area where the top hard bed was being worked, thus providing an immense tonnage for the district.

A record was also given of the deep borings at Kelham and South Leverton. The Kelham boring, which was commenced in Sept., 1918, had determined beyond all doubt that the coal measures had ceased their easterly dip and were now rising. The successful results obtained by that historic boring had led to the further boring operations at Farnsfield, Kirklington, Bilsthorpe and Wellow.

The South Leverton boring was commenced in March, 1913, and had proved the whole ground down to the middle coal measures, and was probably within a short distance of the Barnsley coal bed. The outbreak of war in Aug., 1914, led to a stoppage of operations at this point, but these were about to be resumed again when it was expected to prove the extension of the productive coal measures to that point.



NEW APPARATUS AND EQUIPMENT



Single-Horn Car Feeder

**A Mechanically Operated Device That Permits
Only One Car At a Time to
Enter the Cage**

ONE of the new devices being manufactured by the G. M. J. Manufacturing Co. of Pittsburgh, Pa., is a single-horn car feeder. This apparatus is of simple but rugged construction. It depends for its operation entirely upon mechanical means and requires no over-seeing. Primarily the device is intended for use at shaft bottoms but may be used at a dump on the tippie, or wherever it is desired to feed one car at a time.

The principal parts include two horns, an actuating lever, the operating mechanism, and a tripper. The last named part is a lever with a section that fits into a recess in the rail. The distance from the tripper to the horn is arbitrary, and is determined by the length of the wheelbase of the mine cars in use. The apparatus in its entirety is securely bolted to a structural-steel base with dimensions of 5 ft. 8 in. x 5 ft. 2½ in. x 24 in.

The device is installed by making an excavation that will allow the base to be buried. It is then surrounded with concrete or masonry or suitably supported on the tippie or other structure. The rails then lie flush in line with and against the rails of the adjoining track. This type of construction prevents the device from

the actuating lever and forces it downward. This action is transmitted to the horns and they are forced outward and away from the rails. The obstruction against the front wheels of the incoming car has now been removed and it moves forward toward the cage. When the right front wheel reaches the tripper, this is depressed into the recessed rail causing the horns to again assume a vertical position. The horns are now in proper place to arrest the progress of the car directly behind, in which position they remain until the cage has been raised and again lowered, when the action described is repeated.

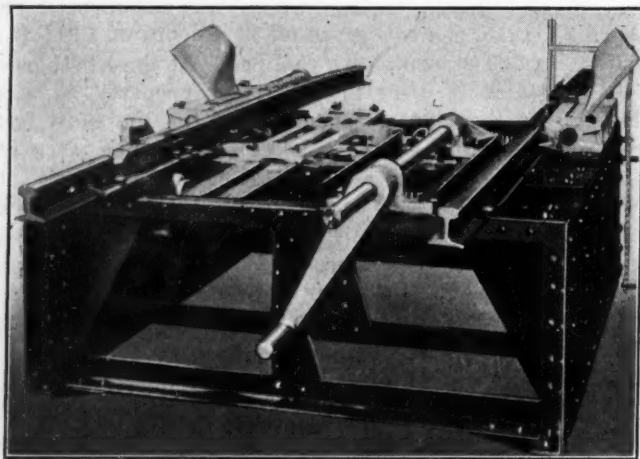
The horns are of solid steel and operate in bearing plates that lie flush with the rails. Coil springs absorb the shock resulting from the incoming cars striking the faces of the horns. The tread of the car wheels that lie against the horns is directly on and over the bearing plate of each horn. Any severe impact against the horns is thus transmitted from the wheels to the bearing plate. The mechanical advantage of this type of construction is manifest since the ends of the bearing plate near the car wheel are kept from working upward and becoming loose.

Head Protection in Mines

**A Hat Strong Enough To Stop a 1-lb. Bolt Falling
40 ft. and To Hold Up a Light Person**

BY GEORGE J. YOUNG

Pacific Coast Representative of Coal Age



SUBSTANTIAL MOUNTING MAKES THE FEEDER RIGID.
The horns are opened by the descending cage and close when it leaves the landing.

creeping forward toward the shaft bottom or dump which might ordinarily be brought about by too great a pressure against the horns opposing the force of the incoming cars. A grade of 5 per cent should be given to the track adjoining the apparatus in order that ease of operation may be assured against stiff-running cars.

When the device has been installed at the landing stage of a shaft bottom, the downcoming cage strikes

IT IS an interesting fact that outside of the Michigan Copper Mining district, head protection in mines is seldom thought of. The ordinary felt hat and cloth cap, it is true, afford a certain amount of protection to the wearer, but for falling rocks of any size, little can be expected from them. In Freiburg, when that district was active, German miners made use of a visorless cap, something like a polo cap. It was made with a thick felt top with felt of somewhat less thickness on the sides. While it afforded good head protection, it had the disadvantage of being hot and uncomfortable.

In Cornwall, England, the Cornish tin miners invented a hat, shaped like a low crowned derby, which was light enough to be handy and stiff enough to stop stones up to fist size. Wherever Cornish miners went, the "hard hat" was used in situations where any considerable amount of "rock fallings" took place in the workings. In the Michigan copper district, the use of the hat is common, but in other mining districts of the United States, it is seldom seen.

Conditions which necessitate head protection are not common in coal and metal mines, but occasionally in steep pitched coal seams and in steep-pitched open stopes where small rocks or tools can fall, considerable distances and acquire sufficient momentum to become

dangerous, some kind of a protective hat is highly desirable. The latest effort to meet this need is a miner's cap made by the Wagner's Protective Cap Co.* The cap weighs 7 oz. It is stiff enough to permit of a light person standing upon it. A machine bolt weighing a pound and falling from a height of 40 ft., is said to scarcely dent it. It is as light and comfortable as such caps can be made while the visor affords protection to the eyes. The cap is also said to be a nonconductor of heat and electricity. It is waterproof and will resist sulphuric acid. It would appear that the manufacturers of this cap have succeeded in incorporating into their design practically all the essential requirements save the one of cost. The price at which this hat is marketed, cheap enough when considered from the standpoint of safety, is so high that it is doubtful whether miners will purchase it.

For working in mines generally, in shafts, in the construction of buildings, the type of hat described appears to be worthy of consideration. Its use is advocated for superintendents, engineers, foremen, surveyors, headmen and footmen, pumpmen and miners.

*454 Santa Clara Ave., Alameda, Cal.

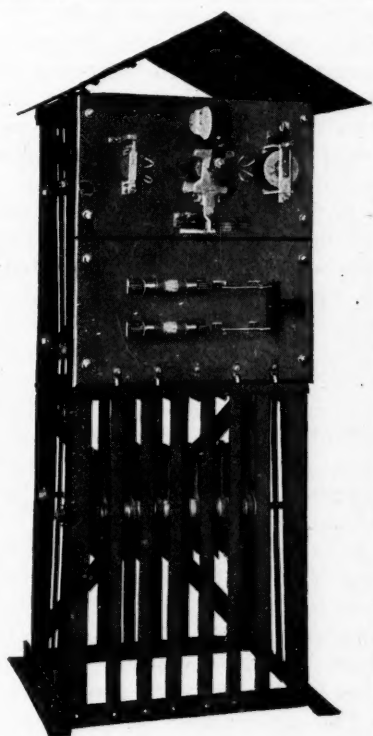
Automatic Battery-Charging Equipment for Locomotives

This Device Renders Attendance at the Charging Station Almost Negligible

FOR the automatic charging of mine locomotives having Edison storage batteries the new C-H charging panel shown in the accompanying illustration has been designed by the Cutler-Hammer Manufacturing

Front View of
Charging
Equipment

The switchboard is supported well above the floor and protected from mine drippings by a suitable gable roof.



Co., of Milwaukee and New York. This may be connected to a 250- to 275-volt direct current circuit since this is the potential available at most mines. The

equipment consists of a slate panel supported by a floor-type mounting frame having the charging resistance self-contained. A sheet-metal roof protects the charging resistance and the magnetic switches on the panel from mine drippings. The switch equipment on the front of the panel consists of a main-line knife switch with renewable fuses, magnetic main-line contactor, voltage relay and shunt trip relay.

The main-line contactor, which connects and disconnects the battery from the line, is controlled through the voltage relay and the shunt trip relay. The former prevents it from closing unless the line voltage is of sufficient value for charging, and causes it to open if the power fails or the line-voltage drops below a predetermined value, thereby guarding against the batteries discharging back into the line. On restoration of the current after a power failure the main-line contactor automatically recloses, and the charge is continued.

The shunt trip relay is connected to the ampere-hour meter on the locomotive and when the battery is fully charged the ampere-hour meter will energize the relay which, in turn, causes the main-line contactor to open and disconnect the battery from the line. This relay also opens the contactor should the line-voltage become too high. Thus the voltage and shunt trip relays permit charging only when normal conditions prevail on the line, that is, the supply voltage must lie between the limits for which the two relays are set.

Authority to Demand Monthly Coal Reports Challenged

National Coal Association Seeks Injunction Against Federal Trade Commission

AUTHORITY of the Federal Trade Commission to demand coal-mining companies to make the monthly reports now being required has been challenged by the National Coal Association. An injunction has been asked in the Supreme Court of the District of Columbia. The suit is brought in the name of the Maynard Coal Co. and it is contended that the commission exceeds its authority in requiring coal-mining companies to file monthly reports showing costs, income and tonnage, and an annual report of financial condition.

It also is contended that if the act be construed as vesting authority in the commission to require these reports, the act itself must be held unconstitutional as being beyond the power of congress to grant such authority under the constitution. The bill of complaint also states that any power that was vested in the Federal Trade Commission to require such reports was transferred to the Fuel Administration by the President's executive order of July 3, 1918.

Before filing the suit officials of the National Coal Association conferred with members of the Federal Trade Commission. The commission recognizes that the suit was brought in a friendly spirit so that the courts may pass upon the fundamental questions of law involved. It is believed that the commission itself is not unwilling to have these questions determined by the courts.

Rush C. Butler, of Chicago, will direct the legal battle. In addition to members of his firm, Frank E. Harkness, former solicitor for the U. S. Fuel Administration, and Karl D. Loos have been engaged to assist in the handling of this and other cases which will be filed.

Alternative Propulsion Fuels Widely Sought in Britain*

Oil Fuel Is Already Replacing Coal to a Large Extent in Trans-Atlantic Liners—Its Use for Inland Transport and Industry Is Being Developed—Other Alternative Fuels Are Suggested

COAL shortage, resulting from strikes and shortened hours of labor in Great Britain, is leading to more intensified efforts to find substitutes for propulsion fuels so that the country's industries can be maintained. A development of considerable interest in this direction may lie in the application of pulverized fuel to railroad locomotives. Trials of this form of fuel have already been made in the United States, Sweden and Brazil, and locomotives also have been built for the Great Central R.R. which are adapted for this type of fuel. A further development is now projected in the application of colloidal fuel, which is a mixture of powdered fuel suspended in heavy oil. Oil, however, continues to be the most important fuel, and an active research is going on for all sources of oil production in Great Britain, under schemes approved and financed by the Government. Nor are foreign fields being neglected.

An earnest attempt appears to be under way to remedy Britain's dependence on other parts of the world for supplies of oil. In Mesopotamia, for instance, important developments are reported to be under the serious consideration of the Government in connection with the granting of oil concessions to such companies as the Anglo-Persian, its subsidiary the Burmah Oil Co., and the Shell Combine. No definite steps, however, can be taken there until the ratification of the Treaty of Peace with Turkey.

In the meantime, interest in oil research in the British Isles themselves shows no signs of slackening. Geological reports from Scotland are not of a favorable character, but in England a colliery at Retford, which has given indications of oil reserves, is about to be tried and developed on the same lines as the wells at Hardstoft, from which a steady, if small, supply of oil has been forthcoming since operations first started after the armistice.

The most promising indications in the line of oil fuel in Britain, however, come from the discoveries of oil shales in enormous quantities in Norfolk. These quantities are estimated at 2,000,000,000 tons, so that the development of a large British industry in that centre is confidently anticipated, as the prospects reported indicate yields of 30 to 60 gal. per ton. A seam of shale 11 ft. thick has been cut on property of English

Oilfields, Ltd. It has given over 90 gal. of oil per ton of shale, or about four times the quantity obtained from Scottish shales.

In spite of these encouraging signs, British industries will remain for a long time dependent on foreign supplies of oil. A heavy demand continues for oil tank-

ers of 20,000 tons capacity, such as are being constructed in America. Of interest in this connection are the large works in course of construction at Swansea, by the Anglo-Persian Oil Co., for the refining of imported crude oil.

From Liverpool also comes the report that the Mersey Docks and Harbor Board have decided to spend half a

million sterling in the acquisition of the Dingle Bank Estate, where they propose to have installations erected to supply oil fuel to vessels. It is intended to prepare an oil distributing centre on a large scale, 20 acres of land having been set aside for this purpose.

This step is, of course, the outcome of a great development of oil fuel for shipping purposes. Five leading oil companies, including the Anglo-American, will participate, and they are starting without delay the erection of huge storage tanks designed to provide a capacity for many millions of gallons. Having in mind that oil is destined to play an important part in the industrial development of Great Britain, the Mersey Board proposes to link up the projected oil installations with the Liverpool railroad, so that tank wagons may be loaded on the spot for transport to inland centers.

The French Government is understood to have sanctioned the construction of a double-pipe line for oil between Havre and Paris, a distance of about 150 miles. One of the pipe lines, with an internal diameter of 10 in., is to be used for heavy fuel oils, and above it, the Chamber learns, will be a smaller pipe line of 4 in. for petroleum and motor spirit.

It is anticipated that 4,500 tons of heavy, and 1,000 tons of light oils and spirit can be pumped through those lines daily, thus materially lightening the difficulty of supplying Paris with coal by facilitating the use of heavy oils in its place. It is hoped to complete the lines in time for next winter.

The construction work, the Chamber is advised, will be carried out by a French company—the Compagnie Française des Mazouts et Petroles—which will also build a wharf at Havre for vessels bringing the oil, erect reservoirs with a total capacity of 60,000 tons, and provide pumping stations, etc. The estimated cost is

Pulverized coal and colloidal fuel are being considered. Search is being made for oil. Oil shales, some of which yield 90 gal. per ton, are being tested. Further arrangements are being made in Great Britain to store oil for vessels and in France to pipe fuel oil and gasoline from Havre to Paris. Use of steam, gasoline and producer-gas as propellants for motor trucks compared.

*From *Anglo-American Trade*. With exchange at \$3.655, a penny is equal to 1.523c., a shilling is equal to 18.27c., whereas at normal exchange a penny is equal to 2.029c. and a shilling is equal to 24.35c.

about three millions sterling at the normal rate of exchange.

An adequate and cheap supply of fuel being essential to the development of Britain's expanding motor industry, a great deal of attention is being devoted to finding a suitable substitute for petrol, the price of which is now 2s. 10½d. a gallon, to which a further increase of 8d. per gallon has been made. In 1919 the United States automobile output totalled 2,000,000 cars, which alone absorbed an oil consumption of 400 million gallons, and although between 60 and 70 per cent of the world supply of oil comes from the United States, no marked increase of yield there is reported.

Economy in the use of oil has been tried, but the one effective method of economizing would seem to be to run heavy cars on solid fuels. This is where the producer-gas motors are likely to receive favorable consideration. It is known that except in the case of an-

thracite all the solid fuels now in use involve a loss of byproducts.

D. J. Smith, of the Institute of Automobile Engineers, has been giving careful consideration to this problem, and is believed to have evolved a design which opens up new and wide possibilities in motor traction. In his opinion one ton of coal should propel a 5-ton steam-driven wagon 160 miles, whereas if subjected to distillation it would produce 13,000 cu.ft. of gas, of which 250 cu.ft. (the equivalent of one gallon of petrol) would propel a 5-ton wagon equipped with an internal combustion engine 312 miles. In making a comparative analysis of the cost of moving the same vehicle by steam, petrol, and producer gas, Mr. Smith works out a proportional cost which stands at 1s. 6d., 3s., and 2s. 8d. respectively, taking as bases for estimate coal at 50s. a ton, petrol at 3s. a gallon, and coke at 55s. a ton.

What Changes I Would Like to See in McAuliffe's Plan

Wants Inquiries Directed by Individual Effort Under Bureau of Mines—Would Have Differential Periods Shorter and More Numerous

BY M. L. O'NEALE
Gouverneur, N. Y.

I WAS much interested in reading, in your issue of March 11, the paper by Eugene McAuliffe, entitled "Stabilization of the Bituminous Coal Industry," which was delivered before the February meeting of the Institute of Mining & Metallurgical Engineers in New York. I have not devoted sufficient time to this subject to justify a criticism of this estimable paper. However, one or two features of the remedies suggested struck me as possible of improvement. First, as regards the appointment of a General Coal Commission of seven members with a term of office of seven years, this commission to be largely a statistical and fact-gathering organization: This commission, according to the plan outlined, would be neither a judicial nor legislative body, and for that reason I see no object in dividing its authority and directive force between seven men. Concentration of this authority in one man, in my opinion, would better fix responsibility, secure better results and cost less in operation. This concentrated authority would lend itself to a division of duties among subordinates, each charged to collect data in a particular field of endeavor and responsible for its work in that field.

A publicity department would make known such facts and conclusions as the department head should deem advisable. This entire organization should be a part of the Bureau of Mines, and not a loose end dangling from the already overworked presidential hand.

Being merely an advisory body and not judicial or legislative, a head with subordinates would give better results than a council of seven. Such a plan would be less expensive and more productive of result. Seasonal freights with only two differentials annually would bulk purchases at, or near, the date at which the change in rate is made.

Unfortunately in some respects and fortunately in others, the coal resources of this country are so enormous that it is difficult, if not impossible, to hold the developed capacity of the mines within reason, particularly when bankers, lawyers, merchants, and others unfamiliar with the game are all too ready to put money

into the development of a new property. An engineer may make the most accurate report on the cost of development of a coal property, figure out the mining cost in detail, give the prevailing selling price of this coal and the estimated profit per ton, but what avails all this if the market will not take care of this production, or if the railroad cannot

furnish sufficient equipment, or if the labor market is already overbought, any or all of these factors resulting in running part time or at reduced capacity? If this commission could only keep capital and the public warned of the pitfalls in the coal industry, it would do a great service in tending to discourage the opening up of new mines with consequent overproduction.

The second feature of Mr. McAuliffe's treatise I would like to discuss is his plan of seasonal freight rates. With some modifications, I think this the most practical way yet evolved to reduce the seasonal fluctuations in demand. Of course any change of this kind, which alters the competitive status of established industries, is bound to hurt some and benefit others, no matter how fairly designed. A uniform percentage increase

or decrease of freight rates has the same effect. Some will gain and some will lose. Some will favor and some will oppose. The problem is one of the greatest good to the greatest number. The industry whose coal cost is small relative to the total cost of its product, may, by the very reason of its small coal consumption, be able to gain the benefit of storing coal in summer, the physical problem of storing and the capital tied up being relatively small matters, while another industry, whose coal bill is a large percentage of the cost of its product, would not be able to spare the capital or find the room for storing sufficient coal to be of material benefit. Thus we have on the one hand an industry saving a percentage of a small cost item, and on the other an industry saving nothing on a large cost item. However, there may be enough of the first kind to somewhat equalize the seasonal demand, which is the object sought, industries adjusting themselves to the new conditions just as they do when freight tariffs are changed, or when import duties are revised, or when there is a change in any other of the many factors affecting a particular line of business.

I think, then, that seasonal changes in freight rates on coal is a step in the right direction. However, I am of the opinion that the plan proposed by Mr. McAuliffe may be bettered. He divides the year into two periods, March 1 to Aug. 31 inclusive, and Sept. 1 to Feb. 28 inclusive. It is highly improbable that industries would store coal in March, paying the same price that they would pay for the same coal in August, so that the tendency would be toward a weak demand in the spring and a heavy demand the latter part of the summer, resulting in the same congestion and crippling of railroad service that we now have in the

winter. My idea would be to maintain the regular rates on coal in the spring and fall, with a 15 per cent higher rate in the winter and a 15 per cent reduction in summer. The rates then would stand in percentages thus:

January	115	July	85
February	115	August	85
March	100	September	100
April	100	October	100
May	100	November	100
June	85	December	115

The working of a seasonal-rate plant of whatever kind presupposes that the coal operator will charge substantially the same price for his product at the mine the year round, the transportation cost being the variable, this obviously being much easier of accomplishment than a seasonal schedule of prices at the mine under the scattered and disorganized state of the bituminous industry. The largest and most substantial operators would doubtless maintain this uniform price, but there would be nothing to prevent the advantage of a lower freight rate in summer being nullified by the price at the mine being raised at this season, which conceivably might be done, particularly if a strike or other contingency in the winter or early spring forced an unusual demand in the summer. For this reason also I think the rate changes should be at three-months intervals, as suggested above, rather than at six-months, as suggested by Mr. McAuliffe. The very inertia of the market would act as a stabilizer over the shorter period of three months, when it might not be effective over the longer period of six months.

This subject should bring forth more comments from your readers. Through discussion the best ideas can be presented for consideration and thereby the matter may be kept in the foreground ready for suitable action.

Precautions To Be Taken Against Lightning Where Shot-Firing Systems Are Used

An Inductive Charge of the Wire Will Do Little Harm if a Gap Is Provided, but, if the Wire Is Struck by Lightning, Accidental Discharge of Explosive May Be Apprehended

BY GEORGE S. RICE AND L. C. ILSLEY

A REMARKABLE explosion of firedamp caused by a discharge of lightning at the new shaft at the Sitalpur coal mine has been reported by the Chief Inspector of Mines of India, who gave the following details:

"The explosion occurred during a thunderstorm, and the evidence showed that a flash of lightning had, to all appearances, passed down the shaft, causing disruptive discharges at certain points between the guides and the winding rope, rending the latter at two places situated respectively 228 ft. and 278 ft. from the surface. The distance between the winding rope and the side of the shaft was 5 ft. 4 in., indicating a spark gap of this width, and an intensity of discharge which could not fail to ignite the explosive mixture of gas and air known to be present in the shaft."

*Article entitled "Electric Sparking in Mines from Lightning" in *Monthly Reports of Investigations*, by U. S. Bureau of Mines.

Compressed Air Magazine, January 1920 issue, which contained the above extract, also goes on to state:

"In 1915 M. Ferey described phenomena of a similar character to the above in a paper read before the Société de l'Industrie Minérale. In a pit liable to sudden outbursts of gas, for the sake of safety shots were fired from the surface. In regard to this pit we read in the *Colliery Guardian*, of London, that during a storm in the year 1905 shots went off in two places after the detonators had been connected to the conductors.

These shots were situated respectively 1,400 and 1,410 m. from the firing station. Realizing the possible danger from this cause, the precaution was taken to cut the conductors at the bottom of the shaft and to connect them just before firing. Even under these conditions a shot went off spontaneously, owing, it is believed, to lightning."

The Bureau of Mines, when it was investigating shot-

firing from the surface some years ago, found a number of cases where lightning had passed underground. In one case, in a shallow mine in Pennsylvania, lightning entered, following the roots of a tree, and caused the death of a man in the main entry. In another case, in the Pratt City mine which came under the observation of the Chief Mining Engineer, lightning entering on shot-firing wires caused premature ignition. This led to the recommendation of making a gap of about 5 ft. in the shot-firing line, which was not to be closed by the flexible cable until the men had all been withdrawn from the mine.

Another case reported was that of a mine, temporarily abandoned, belonging to the United States Coal and Coke Co. at Gary, W. Va., where an explosion occurred following a flash of lightning which evidently entered the shaft and ignited the firedamp.

LIGHTNING ARRESTERS ARE NOT SUFFICIENT

A system by which lightning will be prevented from entering the mines is difficult to arrange, especially in mines where electric shot firing is practised on an extensive scale. Ordinary types of lightning arresters are satisfactory protection against static electric currents produced by lightning discharges, but if a "lightning bolt" actually hits the circuit, there is such an enormous amount of energy to be dissipated that the ordinary devices do not suffice.

Following out the same reasoning, a gap of sufficient length to afford protection for static electric discharges resulting from electric storms would not necessarily be a proper protection if the circuit were hit by a "lightning bolt" and consequently received the full energy of the lightning discharge. There would seem to be need of still greater precautions than are suggested in the following paragraph from Technical Paper 108, Bureau of Mines:

"A suitable gap may be provided by inserting in each side of the circuit, near the bottom of the shaft or the slope, or about 100 ft. inbye from the mouth of the drift, a flexible conductor about 6 ft. long. Each of these conductors can be permanently joined to the end of the solid incoming conductors and the other end of each flexible conductor can be provided with a lug for fastening to one of a pair of screw studs in which the outcoming solid conductors should terminate. A similar pair of dummy studs should be installed 6 ft. distant from the live studs so as to provide a place for fastening the flexible conductors out of circuit. The dummy studs should be provided with a locked clamp or similar device for locking the flexible conductors out of circuit."

DISCHARGE MAY BE PREVENTED FROM JUMPING GAPS

It might be feasible to so arrange a firing circuit that the incoming lines could be connected to a high resistance ground at the same time a gap was made in the circuit. Such a ground would tend to dissipate extraordinary discharges and to prevent such discharges from bridging or jumping the gap in the firing lines.

Again, it might be possible to so arrange the ground, the gap and the direction of the incoming and outgoing shot firing lines with reference to the gap that the direction of the circuit to the ground would be a straight line, while the direction of the circuit through the outgoing lines through the gap made a right-angled turn. Since lightning tends to follow straight lines, this arrangement would probably be an added safeguard.

Finally, care should be taken that all metallic circuits, such as pipe lines of other power circuits entering the mine, be kept at a proper distance from shot-firing lines in order that they would not serve as possible paths for lightning discharge. If such precautions are not taken it is conceivable that a lightning discharge in a mine through a metallic circuit which is close to a shot-firing line may be partly communicated to the shot-firing lines at a point beyond the lightning gap.

It is thus evident that there are many things to consider in protecting outside shot-firing systems from lightning discharges, especially if the discharge actually hits a metallic circuit entering the mine.

Claims of Italians for Losses at "Ludlow Massacre" Rejected

Committee Holds That Remuneration Would Place Premium on Disloyalty

AT THE request of Governor Shoup, a committee was named by the last legislature to make investigations into the claims of the Italian Government because of losses to its citizens during the strike which prevailed in the Colorado coal fields during 1912-14 and particularly for the loss of life and property at the so-called "Ludlow Massacre."

The report of the committee filed with the Governor on March 5, rejecting the claim of the Italian Government and setting forth a brief of the testimony, states in conclusion: "This committee believes that to encourage, by remuneration, any citizen of any country to take up arms against the state or to pay those who lost because they took up arms against constituted authority would be to strike at the very foundation of our government and to undermine both the State and Federal Constitutions.

"From its investigations, conducted with an open and unbiased mind, and from all the evidence submitted, this committee is unanimously of the opinion that whatever loss these claimants sustained was the result of an attack on the State; that each one of the claims is unfounded and should be definitely rejected. Should payment be made on any such claims it would be nothing more or less than placing a premium upon disloyalty, rebellion and treason."

Mine Safety Measures in Iowa.—"It is a matter of common knowledge, as is illustrated in nearly every mining case coming before the courts of this state, that the organization and duties of workmen in coal mines are to a very great extent defined by customs and rules which are the outgrowth of long experience, and have come to be recognized and observed as the law of the mine by both miners and operators.

"Among them none is better established than that which, while requiring the miner to prop or otherwise protect the roof of his own room or other place where by his own excavation he is removing the natural support of the overlying rock, imposes upon the owner or operator the duty to make reasonably safe the entries by which communication between the shaft and the various rooms is maintained and passage is afforded for miners and laborers moving from place to place in discharge of the tasks assigned to them." (*Iowa Supreme Court, Owens vs. Norwood-White Coal Co., 174 Northwestern Reporter, 851.*)

New Electrically-Driven Hoisting Equipment at Kilton Collieries

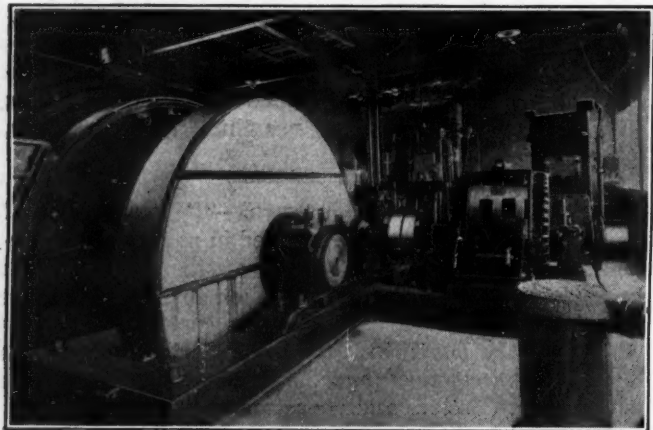
A Cylindro-Conical Drum Hoist, Driven Through a Flexible Coupling and Back Gears by an Alternating-Current Motor and Giving a Rope Speed of 1,300 Ft., Was Installed at an English Colliery During a Week End

BY M. MEREDITH
Liverpool, England

RECENTLY there has been put to work at Kilton Collieries, an interesting example of an electric hoist, representing the latest practice in geared alternating current hoisting equipment in Great Britain. The hoist has been designed to suit the following conditions:

Depth of shaft	720 ft.	Turns on small diam.	6 (three dead)
Net load (rock)	3.5 tons	Turns on scroll	4
Weight of cage and chains	3 tons	Turns on large diameter	9.7
Decks per cage	1	Drum speed	27.6 r.p.m.
Cars per cage	2	Rope	4½ in. circumference
Weight of one car	0.65 ton	Maximum rope speed	1300 ft. per min.
Output per hour	180 tons (iron stone)	Motor rating	370 hp.
Time of hoisting	45 sec.	Motor peak load	440 hp.
Discharge interval	15 sec.	Motor speed	255 r.p.m.
Total time of each hoist	60 sec.	Ratio of gearing	9.25 to 1
Drum, cylindro-conical	11 ft. to 15 ft. dia.	Supply	3 ph., 2750 v., 40 cy.
		Auxiliaries	3 ph., 440 v., 40 cy.

The hoist was built to replace a beam-type engine with overhead drum, which, although somewhat expensive to run as regards steam consumption, was on the whole free from costly repairs. Lately, however, this engine developed defects, and its replacement became increasingly urgent. It was imperative that the steam hoist should remain on duty until the last pos-



FRONT VIEW OF ELECTRIC HOISTING ENGINE
Power is transmitted to the hoist through a flexible coupling and an enclosed herringbone pinion and gear that dips into oil.

sible moment, and that the change-over should take place during a week-end.

This was successfully accomplished, and the electric hoist started work promptly on Monday morning without any hitch. The new hoist house is built (relative to the head gear) immediately behind the old engine house; this incidentally resulted in the distance between the head sheaves and drum being increased in the rope

plane, thus favorably affecting the angling of the ropes.

By this arrangement of buildings, the rapid transference of the ropes to the new drum, and the clearing of a way for them through the upper part of the old engine house were greatly facilitated, while at the same time no alterations whatever to the head sheaves were necessary. The new hoist house is constructed of reinforced concrete, with ample accommodation for the machinery, and adequate floor space has been allowed. Daylight is freely admitted from windows of large area. As a result, inspection of all machine parts may be easily made and perfect cleanliness is insured.

DOUBLE HELICAL GEARS DIP INTO OIL

The induction motor is geared to the drum shaft, the driving pinion being mounted on an extension shaft supported by two bearings, the connection to the latter shaft being made through a flexible coupling of the "pin" type. The gearing is of the double helical variety, and is mounted in a dust-tight gear box where the main gear dips into an oil bath. This wheel, which is about 10 ft. in diameter, is split in halves for the purpose of facilitating its erection and also its removal from the drum shaft should this ever be necessary.

In order that high peaks may be eradicated and the hoist cycle equalized to a considerable extent, a cylindro-conical drum was designed and installed. It is perhaps unnecessary to point out that the shorter the landing period can be made, the more efficient becomes the hoisting cycle. The discharge period in this case is 15 sec. Further equalization is not called for in this case, especially as the power company has installed within a short distance of this particular colliery a synchronous motor for correction of the power factor in the district. The drum brakes are operated by means of a compressed air engine that raises or lowers the main-brake lever, which is of the usual weighted type.

In the event of the operation of any emergency trips—for instance, when an overwind occurs—a solenoid-released trigger causes the main brakes to go into the "on" position immediately. The interlocks are such that the brakes remain in this position until the emergency condition is rectified or restored to normal and the power put on again.

The air compressor for the brake engines is of the two-stage type driven by a 10-hp. motor. It is supplied with energy from a 3-phase, 440-volt auxiliary transformer, which also supplies the solenoid and controller-pump motor. The hoistman's platform is placed at such a height as to give the operator a clear view of all the machinery under his care, a condition which is perhaps too often overlooked. The motor is

controlled by a liquid controller of the weir type, fitted with oil-immersed reversing switches.

During the time the controller is in circuit, a continuous flow of electrolyte is pumped into the upper tank, returning over the sluice gate into the lower tank. The movement of the operating lever throws the reversing switch in one direction or the other, according to the direction of rotation, and at the same time raises the sluice gate. This causes the level of the liquid in the upper tank to be raised, and consequently the resistance between the electrodes to be decreased. When the operating lever is returned to the "off" position, the sluice gate is lowered again and the level of the resistance liquid is also lowered, this increasing the resistance in the rotor circuit. Just before reaching the "off" position, the primary circuit is opened on the reversing switch.

When it is desired to run at a slow speed, the sluice gate is lowered to an intermediate position only thus increasing the resistance as found necessary. Owing to the fact that the resistance liquid cannot follow the raised sluice gate faster than the pump can deliver the liquid into the upper tank, a certain minimum accelerating period of the motor must be adhered to, although it is possible to obtain a longer acceleration period. The duration of the acceleration period is adjustable within limits by means of a stop-valve in the delivery pipe of the pump.

When hoisting men, it is often necessary to adopt a different rate of acceleration than when raising stone, and the necessary adjustment may be quickly effected. The reversing oil switches are fitted with safety interlocks, which are so arranged that the oil containers cannot be removed without tripping the main oil switch.

OVERSPEEDING IS PREVENTED

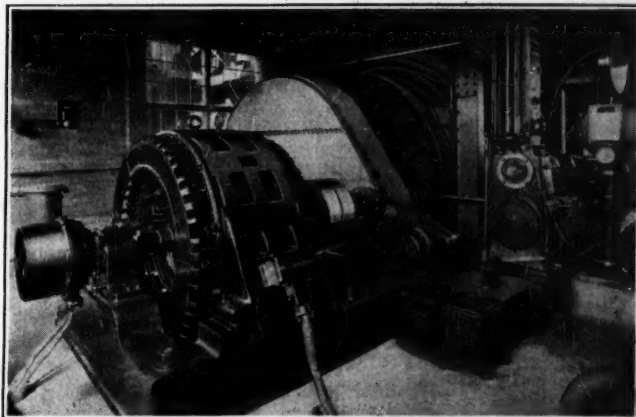
An electric overspeed-preventer device has been fitted to this machine. In this case this device consists of a direct-current series-wound generator, chain-driven from the motor extension shaft, and arranged to deliver its output through a bank of resistances, a relay, and an ammeter. These resistances are inserted into the generator circuit in a number of equal steps, each of which corresponds definitely to a certain number of completed turns or fractions of turns of the main drum during acceleration.

The resistance inserted will only maintain the current in the small series-generator circuit constant up to full speed, provided the generator speed or drum speed rises at a definite set rate. Put in another way, the drum speed as taken at short intervals must only reach certain values relative to the position of the rheostat. Should it exceed these, the resistance previously inserted would be insufficient to keep the current through the relay within safe limits.

In such a case the result would be that owing to too high a rate of acceleration having been permitted, the relay would trip the main oil breaker, and the equipment would be temporarily shut down. Similarly, when approaching the end of the hoist, the operator must not neglect to slow down his machine at the point for which the device is set, otherwise the resistances will be cut out more rapidly than the generator speed and voltage drop, which would cause the excess current to open the breaker.

It is therefore obvious that a hoist fitted with this device must always be driven in such a manner as will

insure the maximum of safety, the hoistman being compelled to follow a definite accelerating and decelerating curve within safe limits. The governing device acts as an efficient overspeed preventer during the constant full-speed running time of the hoist, and also



REAR VIEW OF MOTOR AND HOIST

This 370-hp., 3-phase, 40-cycle, 2,750-volt, British Westinghouse motor operates at 255 r.p.m. Suitable control devices are of course installed.

in the case of a loaded cage being lowered on the brakes only, and beyond "safe" speed.

The overwind switch is of the friction-driven type, being fitted with a flexible steel-rope drive working in a grooved pulley mounted on the switch spindle. The rope is attached to a lever which is struck, when an overwind occurs, by tappets provided for that purpose on the depth indicator. The flexible cord pulls the switch open and shuts down the hoist, but as the drive on the grooved pulley is by friction only, the switch may be reset quickly by hand, the rope slipping in the groove to permit this. It will therefore be perceived that should the hoist be started in the wrong direction following an overwind no risk is incurred, as the switch will always shut the machine down before the cage has moved one foot upward.

Existence of Employment Relation—Status of Certified Mine Foreman.—If a company chartered to mine coal and produce salt transferred the coal-mining business to its president and general manager for his own account, but that fact was not disclosed to employees, who were thereby induced to believe that they were working for the company, being employed and paid under the same conditions as the company's men engaged in the work of producing salt, an employee injured in the mining operations is entitled to hold the corporation liable on proving negligence toward him producing the accident.

A mine foreman who, in addition to his statutory duties, and by authority of the operator, employs and discharges miners and has general charge of the mining operations, is to that extent the representative of the operator, rendering the latter liable for injury to a miner resulting from a negligent order given by the foreman to throw a switch, thereby causing a train of empty coal cars to be diverted into a side entry and to strike a miner who, ignorant of the danger and obedient to a prior direction by the foreman, was shoving a loaded car from his place of work onto the siding. (*West Virginia Supreme Court of Appeals, Ward vs. Liverpool Salt & Coal Co., 92 Southeastern Reporter, 92.*)

Is the Health of Mine Workers Adversely Affected by Mine Conditions?

Mine Workers, if Anything, Enjoy Better Health Than Other People—Tuberculosis Does Not Seem as Prevalent Among Them as Among Other Workers—Nystagmus Is Apparently Unknown in Illinois, Where Investigation Has Been Made

By C. L. GREEN
Fairmont, W. Va.

CASUAL observers would be fully justified in pronouncing the occupation of coal mining one liable to affect adversely in a marked degree the health of the workers engaged in it. The miner works underground, shut off from the light of the sun, in places that are often damp or even wet, and in an atmosphere impregnated with coal dust. Every condition would seem to favor the growth, if not the propagation, of tubercular germs, and the promotion at least of respiratory diseases such as asthma, bronchitis, etc.

That things are not always what they seem is clearly illustrated by the facts relative to the health of the mine worker, which facts have been proved by surveys, examinations and the close observation of mine workers by medical practitioners and specialists.

During the anthracite coal strike in Pennsylvania in 1902 the question of the miners' health was raised, and a health survey of that region and of a central Pennsylvania farming region was conducted. It was found, according to Prof. H. H. Stoek, that tuberculosis was far less prevalent in coal-mining sections than in farming communities.

In "Preventative Medicine and Hygiene," by M. J. Rosenan, professor of preventative medicine and hygiene, Harvard University, that authority says: "De Crocq speaks of the rarity of tuberculosis among Belgian coal miners. Arnold reports that in Germany tubercular diseases are rare among such men and that there is a prevailing opinion that anthracosis is antagonistic to tuberculosis. Goldman attributed the freedom of the coal miner from tuberculosis to an antiseptic action of the coal dust."

In "Occupational Diseases," by W. G. Thompson, professor of medicine, Cornell University Medical College, we find the statement: "Coal miners are fairly healthy workmen, despite the large quantities of dust inhaled, and are found to be less susceptible to diseases of the lungs in general than many other classes of workmen, provided they do not drink heavily. In fact, among the coal miners of England and Wales, the mortality from these diseases is actually less by one-fifth than the mortality among males of all other classes in general."

Professor A. C. Callen, professor of mining engineering, West Virginia University, College of Engineering, tells us: "Miners' nystagmus seems to be a common dis-

ease among coal miners abroad, as may be readily inferred by a study of various bulletins published on the subject. The consensus of opinion is that in the United States it is very rare. For example, Lane and Ellis, in their report on behalf of the Illinois Commission on Occupational Diseases, January, 1911, say: 'Of the

30,194 pick miners in Illinois, we examined the eyes of about 5,000, or one-sixth of the entire number, without finding a single case'."

George S. Rice, in U. S. Bureau of Mines Bulletin 132, tells us: "However, as to the effect of coal dust upon the lungs, two opposite opinions are held—one that the dust is not only harmless, but even conducive, to health, and the

other that it is a danger to health. These discordant opinions are due to the fact that some workers are exposed to the inhalation of pure coal dust and others to the inhalation of shale dust with the coal dust, and frequently shale dust contains much free silica."

Here we have a number of well-known authorities agreeing almost unanimously that the inhalation of coal dust is not to be regarded as a menace to health. "These are opinions only," the reader may say. Let us, therefore, examine certain surveys that have been made by insurance companies which throw light upon the effects of the coal-mining industry upon the health of mine workers, as compared with the effects of other occupations and callings upon workers engaged in them.

Insurance companies made these surveys for business reasons, and upon the results of the surveys are based the rates for insurance. Being of greatest importance from a business point of view, it is reasonable to suppose that every means available is utilized to make the surveys accurate, and we are therefore justified in accepting them as records of facts.

The Metropolitan Life Insurance Co.'s survey of 579,197 white persons of both sexes and all ages over one year discloses that sickness so serious as to be disabling affects an average of 188 persons in every 10,000. This same survey showed sickness from tuberculosis among these 579,197 persons to be 7.5 persons per 10,000. Statistics which follow show a rate of sickness of 173.6 per 10,000 for bituminous miners and a rate of 140.6 per 10,000 for anthracite miners (accidents not included), and for tuberculosis cases a rate of 6.5 per 10,000 persons.

Where 188 in every 10,000 persons of divers occupations were found ill of diseases only 173.6 per 10,000 bituminous mine workers were ill from such causes and only 140.6 per 10,000 anthracite mine workers were likewise incapacitated. The general sickness from tuberculosis ran 7.5 per 10,000 while the bituminous and anthracite sickness ran 11.6 and 4.3 per 10,000 respectively.

A sickness survey was made in March, 1917, by the Metropolitan Life Insurance Co. in Pennsylvania and West Virginian cities adjacent to the mining areas. The workmen in those cities were engaged in widely diverse industries. The survey compares the health of these men with that of coal miners.

Two main coal-mining areas were reached by the survey—anthracite and bituminous, the former located in northeastern Pennsylvania and the latter in fields situated in southwestern Pennsylvania, and near Fairmont and Wheeling, W. Va. The bituminous survey also was extended to a few coal miners and their families located near Parkersburg and Huntington, W. Va.

Facts as to sickness were secured in 17,110 families, representing 85,320 persons. Of this number, 22,235 were miners, 16,201 being employed in the anthracite and 6,034 in the bituminous mines.

Illness or incapacitation due to accidents is not included in the results of the survey as shown in the tabulation that follows, for this article deals with general health conditions only, and not with hazards. The results of the survey show as follows:

SICKNESS RECORDS OF 22,235 MINE WORKERS

	Bituminous	Anthracite	Rate per 10,000	
Persons examined.....	6,034	16,201	Bituminous	Anthracite
Ill from all diseases....	105	250	173.6	154.1
Typhoid fever.....	0	2	0.0	1.2
Influenza.....	10	24	16.5	14.8
Rheumatism.....	10	30	16.5	18.5
Tuberculosis.....	7	7	11.6	4.3
Pneumonia.....	5	16	8.2	9.8
Pleurisy.....	1	8	1.6	4.9
Asthma.....	9	34	14.9	21.0
Miners' asthma.....	6	42	9.9	25.9
Other respiratory diseases.....	4	5	6.6	3.1
Other diseases and conditions.....	53	82	87.8	50.6

The rate per 10,000 persons of diseases of the respiratory system shows 41.4 for bituminous miners and 64.7 for anthracite miners. This difference is accounted for by the fact that anthracite coal is harder and more flinty than bituminous coal and therefore the action from the dust of anthracite is more harmful to the respiratory system.

The findings clearly confirm the well-known facts from mortality statistics, which have shown for many years low death rates from tuberculosis among coal miners. The facts elicited from the survey strongly suggest the desirability of further and more intensive clinical study of pulmonary tuberculosis among coal miners. Such study may well serve to disclose the factors of environment which protect coal miners, and in a measure create an immunity from the disease.

48 MINERS' ASTHMA CASES IN 355 SICK MINERS

It will be noted that but 6 of the 105 sick bituminous miners had miners' asthma, or a rate less than 10 cases to 10,000 men, or one in a thousand, while in the anthracite miners, one in every 400 had this disease. This is accounted for by the difference in hardness of the coal and the more flinty nature of the dust.

Among the families of the miners—persons not exposed to the effects of the mines—the sick rate was 162 persons to each 10,000, as against 173.6 per 10,000 among the miners, showing a difference of only 11.4 persons per 10,000 whose illness might possibly be attributed to the industry.

A tabulation of diseases of miners' families (not including the miners) shows as follows (disabilities resulting from accidents being excluded from the list):

SICKNESS RECORDS OF MINE WORKERS' FAMILIES

	Cases per 10,000 Persons	
	Bituminous	Anthracite
Persons examined.....	19,416	43,669
Ill from all diseases and conditions.....	306	597
Typhoid fever.....	7	2
Influenza.....	27	47
Rheumatism.....	20	36
Tuberculosis.....	11	18
Pneumonia.....	13	61
Asthma.....	1	13
Other respiratory diseases	15	31
All other diseases, etc.....	212	389
	109.2	88.8

A little less than 2 per cent of the coal-mining population, including the miners and their families, reached by the survey in Pennsylvania and West Virginia were found to be seriously sick. Among the miners themselves the sick constituted 2.7 per cent of the total canvass, the excess in the rate being largely due to the high incidence of the respiratory diseases and of accidents and injuries.

The bituminous miners showed a slightly lower sickness rate than did anthracite miners. Bituminous miners' families, however, showed a higher sickness rate than the families of anthracite miners.

Pulmonary tuberculosis was extremely rare among workers in the anthracite mines. On the other hand, miners' asthma and other diseases of the respiratory system were prevalent. This phenomenon points to the necessity of more intensive study of the factors involved in the apparent immunity of the anthracite miners to tuberculosis. The diseases and conditions recorded among members of coal miners' families do not differ essentially from those found in previous sickness surveys.

I would conclude that serious sickness is no more prevalent among miners and their families than among families previously studied in other industrial communities of the United States. Accidents play a great part in incapacitating coal miners, and statistics show that the percentage of accidents in coal mines is greater than in many other industries and occupations.

Taken all in all, the occupation of coal mining is as healthy as the average industry or calling, the accident hazard is no greater than in many industries and the remuneration for the work compares favorably with the most lucrative of occupations.

Scope of Miner's Employment—Contributory Negligence.—Although an employer is not liable for injury to an employee while the latter has stepped aside from his line of employment, thereby exposing him to a danger which the employer could not have contemplated, the fact that a miner temporarily passed from his working place to a crosscut to await clearing away of smoke in his place of work cannot be deemed to be a departure beyond the scope of his employment; nor can the fact that he went into the crosscut to take a drink of water, or to advise a fellow employee of the placing of a can of powder, or to test a fuse.

The employer must anticipate the employee's acts in stepping aside from the place of his actual work in such circumstances. One employed to load holes and attach fuses for blasting acts within the scope of his employment in testing the fuses, since that is for the mutual benefit of the employer and the employee.

When an employer asserts that the direct cause of a worker's injury was the latter's own carelessness, he has the burden of proving that fact by the preponderance of the evidence. (*Colorado Supreme Court, Micheli vs. Rapson Coal Mining Co., 164 Pacific Reporter, 311.*)

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Coal at \$40 Per Ton

HOW MUCH coal do you think you could sell a railroad fuel agent at \$40 per ton f.o.b. your mine? "Not much!", you'll answer. And yet that is the estimated cost to one system for the fuel it bought in the wild scramble for coal during part of the recent strike period. Just how this cost came to be is the moral of our tale.

As all of us now know, even including the worthy ex-members of the Federal Railroad Administration's purchase section, the failure of the railways to buy and stock coal early last year was a big mistake. But without recrimination as to who was to blame let's see the consequences to one road.

This system had no coal in stock when the threat of a miners' strike became serious; worse than this, it could not get any surplus above its daily needs, for every one else was grabbing all that came their way. This line, therefore, for most of the strike period lived from hand to mouth, never quite sure from which point its next week's fuel was to come, in some cases even in doubt whether it would come at all. It was thankful for most anything that "was black and looked like coal"; and it got just that kind of stuff.

And the results—. No trains on time; many firemen and enginemen quit because the coal was impossibly bad; and over-time had to be paid for those who stayed on the job. Freight trains were cut down in size and even then they could only limp along because the best of enginemen could not get results with the fuel supplied. And anyone knows what a limping freight train does to the rest of the traffic on a busy division. Only a week of this thing and you can see the chaos wrought in the traffic of this road, how junctions with other lines became choked with freight and how everyone in the organization became disgusted with his job. You can see the *real* cost mounting to the aforesaid \$40, even though the coal man got only his "government price."

When you talk with the railroad-fuel agents about their next year's stock, just ask them what they think of this case. Perhaps it will help persuade them to buy and stock a bit more coal than at first planned. Don't try to make us prove a \$40 cost to them, for maybe the fuel agent with whom we talked was a bit too pessimistic when he told his story. But even a quarter of that is bad enough to be convincing to your man. He knows that the best coal he can buy is the cheapest for his road no matter what the price. Show him how to get it now and why he won't be sure of it if he waits till next November. Just remind him, too, that when the snow flies next fall he'll not have the U. S. Fuel Administration authority to divert his coal for him, nor any "government price" to help him either. Storage is insurance; the man who does not keep a supply of coal on hand for the winter is as foolish as the man who fails to take out an insurance policy against the possibilities of accident, disease, fire or lightning.

Stabilizing Effect of "Ship-by-Truck" Movement

IN NO PERIOD of the year is the coal trade more stagnant than in the spring. Usually it is a time of no orders and many cars. Summer is little better. What is wanted in the spring and summer is not more transportation but more orders. Why talk therefore of shipping by truck in that period of the year? Just because during those seasons, as in autumn, good roads are admirably suited for travel, and coal can therefore be shipped in many cases more cheaply by truck than by railroad.

Where the railroad track extends from the tippie of the producer to the plant of the manufacturer, and the latter has an elevator or a trestle to take care of the coal as it arrives, there is much to be said on behalf of the railroad, whenever the cost of shipping by truck is greater than the freight rate, which is the case where the distance is long and roads bad; but when the person receiving the coal does not have a railroad siding, the coal, if to be transported by the railroad, must be unloaded and perhaps stored, loaded from storage into a motor truck or horse wagon and hauled perhaps some miles and put onto the recipient's storage pile.

Clearly in many cases it would be cheaper to provide for but one form of transportation—carriage by truck. The greater flexibility of this unit as compared with the railroad is readily apparent. The seller is not held down to his own line of railroad, he is not obliged to follow where his own or some other railroad has gone. Within limits he is free to place his coal where he will. He can make the price *right*, because there is only one handling to pay for, there is no yard service, no demurrage, no pilfering of coal.

The possession of a motor-truck, of the right type of course, and a truck- or wagon-loading-chute, which practically all mines possess, will give him a chance—provided he has a few good roads to important towns—to keep his mines working when others are closed. The business will be in a degree seasonal—best suited to the summer. It will balance the railroad activity which is greatest in the winter. It will be obtained solely on the merit of the contention that with a good truck, good roads and good weather, coal can be transferred from the tippie to the bin or storage ground of the purchaser more cheaply than with the help of the railroad company. "From mine to cellar" may be the slogan of coming coal companies, at least during the favorable months of the year.

Shortage of Houses Disturbs Coal Market

LAST YEAR the shortage of houses caused many sales of metropolitan real estate. When a property was sold over the head of a tenant, he tried to secure a home by buying another house. Upon securing it, he promptly turned out the tenant. In consequence, dwellings were changing hands with great rapidity.

The man who expects to sell a property does not fill his cellar with coal. He knows, or thinks he does, that he can sell his property for the same amount whether the cellar is stocked with fuel or is swept bare. Many landlords and most tenants avoided buying coal, for they did not know just how long they would own or occupy the building in question.

This had a bad effect on the trade in coal early last year and may have some important influence on buying this year. Many people are purchasing houses and expecting to hold them just long enough to raise the rents. After that is done they will sell the house for a price much above the purchase rate. This practice is greatly retarding coal storage.

As the tenant is wholly at the mercy of the landlord, the latter can easily impose on the former, refusing early in the year to heat the building any longer. If the tenant complains, he is politely evicted. That the landlord is going to renovate the house, is the reason given. There are laws and fines for landlords who fail to supply the heat which is specifically or impliedly promised. But if the officials of the Health Department step within the doors and, after examination, decide to summon, or even upbraid the landlord, he suddenly declares it is necessary to have the house vacated that necessary repairs may be effected. As soon as the tenants have vacated, he looks for other tenants who will pay a higher rent and who are docile enough not to trouble the Health Department. Only the other day a man was refused a lease till he had passed the scrutiny of a two-month occupancy and had shown himself willing to be satisfied with almost any treatment.

This situation will result in quite a saving in the consumption of coal. It may result in a general custom of keeping houses during winter as frigid as those in Great Britain. The cry of "Save Fuel" during the war was hardly as competent to reduce consumption of coal as is the present economic situation.

Against this conclusion must be placed the fact that apartment houses are not in general being built. Two-family houses are more customary. Undoubtedly the apartment house, with its large heating unit and its greater depth and height, should be more economical in the use of fuel per occupant, but on the other hand in two-family houses the owner is usually one of the occupants, and he stokes the furnace with a more watchful eye than does the janitor in a series of apartments.

Certain it is that the uncertainty as to the duration of real estate holdings will delay summer purchases of coal. The effect of the new-found independence of the formerly unfortunate landlord is not quite clear. He will save coal but may, by his profiteering, indirectly cause the construction of many well-appearing but hard-to-heat two-family houses, which will add to the fuel bill of the nation. The anthracite year of 1920-1921 may be looked to with interest. Will it start haltingly and will it show itself as a whole less active than the years preceding it?

Troubles of Our Own Making

ALL the labor troubles of the coal industry that the country is now facing have arisen from the fact that when the mine workers were well and truly beaten in December of last year, A. Mitchell Palmer proposed an armistice, and the Bituminous Coal Commission was formed. If it had not been for the parlor-car conference—that "secret agreement clandestinely arrived at"—peace would reign today in the coal industry, the anthracite operators having nothing to do but grant the same advance as was conceded to the bituminous mine workers.

But Mr. Palmer, so bold before, became weak in the presence of assured victory. He had a good argument before the courts, but would it advantage him at the polls? Did he have at that time a premonition that he was going to be a candidate for President?

Another mistake was the failure to make clear just what authority the Bituminous Coal Commission was to wield. Proof of course is impossible but does it not seem certain that it was planned that the award should bind the operators while merely making a suggestion as far as the mine worker was concerned? Certain it is that no effort is being made to coerce the mine worker into acceptance, Washington seeming to be afraid to declare itself satisfied that the verdict of the majority of the commission is correct.

Every Mine Should Have Its Dollar Storage

Where the Miner Can Shovel His
Winter Dollars for His Summer Needs





DISCUSSION *by* READERS

EDITED BY JAMES T. BEARD

Dead-End in Trolley Haulage

Letter No. 1—From the reading of the inquiry of "Assistant Foreman," regarding the proper distance of the dead-end of a trolley line from the face of a heading, I would assume that he has reference to the use of gathering locomotives.

In my experience in mines, I have frequently found the trolley line carried up to the last crosscut in a heading. It would not be good practice to carry the wire further than that point and it would certainly be unnecessary, as the cable, wound on the reel on the locomotive, will reach a distance of 300 ft., or more than double the distance that a heading would ever be driven beyond the last crosscut, unless it is for the purpose of prospecting the seam. Ordinarily, a heading will not be advanced more than 50 or 60 ft., though the Bituminous Mine Law gives the maximum distance allowable as 35 yd. beyond the last open crosscut.

The point that must be borne in mind, in this connection, is the expense and annoyance of cutting the trolley wire into short lengths and splicing them, whenever it is necessary to extend the trolley line. The more splices that are made in a trolley wire, the greater the risk of a break occurring and causing a possibly fatal accident.

If the mine is generating gas, I would much prefer keeping the dead-end of the trolley line as far back from the face of the heading as convenient, and depend on the length of the cable reeled on the locomotive for hauling the cars from the face of the heading. A 300-ft. length of trolley wire can be put up more perfectly when it becomes necessary to extend the line; and this will give better satisfaction than when the extension is made in shorter lengths, all of which goes to make for efficiency and economy in mine haulage.

SAMUEL MCKAY.

Burgettstown, Pa.

Letter No. 2—Referring to the question of how far the dead-end of a trolley wire should be located from the face of a heading, in mine haulage, allow me to say that, as a mine official, it has been my practice to consider this problem much as I would that of ventilation.

Section 64 of the West Virginia mining laws plainly states that the mine foreman "shall not permit any room to be opened in advance of the ventilating current." In my opinion, this is a good rule to apply to the extension of a trolley wire in a heading. The West Virginia law makes no mention of how far a trolley wire may be carried in approaching the face of a heading.

However, the mining law of Ohio states (Sec. 947) as follows: "No trolley wire shall be extended into or maintained in any room while being used as a working place; no trolley or feedwire shall be extended

into any entry beyond the outside corner of the last breakthrough." It will be seen that this statement, in the Ohio law, supports my practice in regard to the dead-end of a trolley line.

DICK.

Oak Hill, W. Va.

Supporting Mine Roof

Letter No. 4—The question of adopting suitable means of saving timber, which is of growing importance throughout the Pittsburgh district, will soon be of equal importance in all mining districts. Before considering other means of supporting the roof than by the common method of timbering, it would seem best to draw attention to the need of adopting a systematic method of timbering that is designed to meet the particular conditions in each mine.

While I am a firm believer in systematic timbering, let me say that there is no hard-and-fast rule that will apply to every mine. For that reason, the question of timbering the working places must be left to the judgment and experience of the mine officials in charge. Such a system must be used as will best meet the conditions of roof, floor and coal, in the seam mined. These conditions are constantly changing with the varying character of both roof and floor. They are not constant, even in the same mine; and must be carefully watched to determine what changes, if any, should be made in the style of timbering in use.

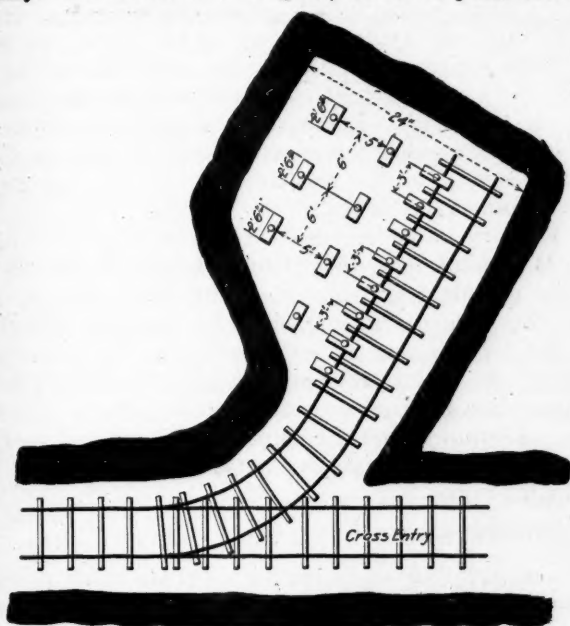
RULES THAT APPLY TO EVERY MINE

There are some general rules that will apply to every mine and district; such are the following: 1. Rules and regulations regarding timbering must be enforced and strictly obeyed. 2. The distance apart and the manner and time of setting the posts in working places must be clearly specified. 3. A plentiful supply of timber of the right size and length must be kept on hand, in each working place. 4. The timbering, in each place, must be regularly inspected by the foreman or his assistant, in order to see that the rules regarding timbering are obeyed. 5. There must be no haphazard methods employed where posts are set in the most convenient place, because the miner is allowed to follow his own inclinations and permitted to use his own judgment. 6. The setting of a post must never be left until the roof is plainly loose and unsafe. Such a practice entails an avoidable risk. Delay in posting and lack of judgment are the cause of many accidents.

Turning, now, to the question of steel timbering, the use of steel girders and posts has proven a most effective means of supporting the roof on roads and entries. For this purpose, different shapes and sizes of steel are used for posts and girders. These consist of I-beams and channel bars, either single or combined. Some special form of chair is generally employed where the girder rests on the head of the post. These steel sets

are cut to the right length and properly fitted together at the shop where they are manufactured, and are ready to be placed in position when sent into the mine.

When steel timbering is used in the rooms, heavy cap-pieces of wood are placed on top of the posts and against the roof to give better support to the latter. In the accompanying figure, I have illustrated the plan of setting steel posts with wood caps, in a room turned off an entry. As shown in the figure, a row of posts is set at



STEEL TIMBERING IN A ROOM

the side of the track, these posts being spaced 3 ft. apart and surmounted with cap-pieces 3 ft. long, which project well over the rail. The caps are 4 in. wide and 3 in. thick. It is frequently necessary to set two or three rows of posts in the gob, to support the roof while the room is being driven up to the limit. These caps are 30 in. long and have the same width and thickness as those at the roadside. The cap-pieces in the gob are set at right angles to those along the road and, as shown in the figure, the posts can be spaced 6 ft. apart and 5 ft. between the rows, where the room is driven a clear width of 8 yd.

Rolled-steel posts of the girder pattern are used for propping the longwall face in a few mines in England, and have given satisfactory results. Cast-iron props were extensively used at the large collieries of the Stavely Co., Derbyshire, England, and at a few other mines; but these have not given satisfaction, as they break without warning, under certain pressure. On the other hand, rolled-steel props will bend under the pressure of the overlying strata and can be taken out, straightened and used again. The steel posts set in rooms are taken out when the rooms are abandoned, and these drawn posts are used over and over again, in driving other places.

WILLIAM DICKINSON, SR.

Oak Hill, W. Va.

Tamping Dynamite

Letter No. 3—In his letter, *Coal Age*, Jan., 29, p. 244, Gaston F. Libiez does not agree with the answer given to the question, "Is it necessary to tamp holes charged with dynamite?" The answer referred to appeared in *Coal Age*, Dec. 25, p. 941. It stated that it is not necessary to tamp such a charge, owing to the fact that the

detonation of the dynamite is instantaneous and the force of the explosion is radiated equally in all directions from the charge.

In regard to this question, I wish to say, that my experience of more than 30 years as a miner, in the handling of dynamite, has been that the untamped hole gave the same results as the one tamped. I have worked with miners who persisted in tamping their dynamite holes hard, hammering and pounding the stemming down on the charge. I have also observed that these heavily tamped holes gave no better results than those not tamped so hard. I find that, as a general thing, a wad of paper pushed in on the charge to hold it in place gives as good results as hard tamping.

Mr. Libiez says, "The full tamping of a dynamite charge should be recommended if only for the purpose of stopping the practice of miners who use a short fuse, light and shove it into the hole and then run like the devil to get out of the way." Allow me to say, I do not approve of the use of the short fuse, as practiced by some miners; but, while I regard it as more or less dangerous, I do not think it is any more so than the heavy tamping of dynamite charges.

I recall one instance where a miner persisted in tamping his dynamite charges so hard that other miners did not like to be in his place while he was tamping. He was warned time and again of the danger of the practice and told it was unnecessary; but he would not be convinced of that fact. One day miners working next to him heard him pounding the tamping in on a dynamite charge, which exploded, killing him instantly.

Mr. Libiez thinks it a pity that practical miners will use so little judgment in using the short fuse. To me it seems equally as much a pity that practical miners will not learn that it is not only dangerous but unnecessary to tamp dynamite charges hard.

JOHN ROSE,

Dayton, Tenn.

Former District Mine Inspector.

Letter No. 4—Referring to the question of the need of tamping a charge of dynamite, the discussion of which grew out of the reply to an examination question that was answered in *Coal Age*, Vol. 16, p. 941, my opinion is that the tamping of dynamite is advisable, although it cannot be said that it is absolutely necessary; because, as stated in the reply to the question, the detonation of the charge is instantaneous and the force is distributed equally in all directions.

It is well known that an explosion of a charge of any explosive acts in the direction of the line of least resistance. In my experience, I have had some large boulders to break and have always found that the work was performed more safely, economically and efficiently, by drilling a hole toward the center of the rock and inserting from a half- to one entire stick of dynamite; instead of placing from eight to ten sticks of the explosive on top of the rock, as is sometimes done in order to save the work of drilling. The smaller charge, located in the heart of the boulder, will do more work than the greater charge placed on top of the rock; because the force of the latter reacts only against the air, which offers small resistance.

PERMISSIBLE POWDERS SHOULD BE TAMPED

Now, the permissible powders that are being so much used in mining resemble dynamite but are considerably weaker. In their use it is necessary to tamp the hole if

good work is expected. It is my belief that all holes should be tamped full to the top or mouth of the hole, with incombustible material, which will make the charge do far better and safer work than when no tamping is placed in the hole.

The writer of Letter No. 1, *Coal Age*, Jan. 29, p. 244, speaks of the practice of miners of using a short fuse, lighting and shoving it back into the hole and then running to safety. I have seen men cut an 18-in. length of fuse, put a cap on the end of it, light the fuse, shove the primer into the hole and run. It is such practices that keep the accident list increasing. It is a careless and reckless manner of shooting.

The most efficient and safest way of firing either dynamite or permissible powder, in blasting coal in mines, is to employ competent shotfirers, who should use nothing but electric caps and batteries for firing. The work should be done after the men have gone.

Johnstown, Pa.

SAK.

Effect of Wire Gauze on Flame

Letter No. 2—Referring to the interesting letter of R. Z. Virgin, assistant professor of mining, Carnegie Institute of Technology, Pittsburgh, Pa., which appeared in *Coal Age*, Feb. 12, p. 324, the author prefaces his remarks with the statement that "the effect of the wire gauze. . . is a question that always creates much interest in the minds of young men who are studying the science of mining." Let me suggest that the same question is interesting, also, to older and more experienced men, which is my apology for commenting on the letter mentioned.

Professor Virgin will pardon me in saying that, reading carefully, he will observe that the question he quotes, as being one "often asked in mining examinations," calls for the conditions under which flame will pass through the gauze of a safety lamp; and, in his explanation, the professor gives but one condition that will allow the passage of flame, namely, the heating of the gauze to a temperature approaching the ignition point of the gas, which he states is 1212 deg. F. The question quoted appears in *Coal Age*, Dec. 11, p. 902, where the reply given by the editor enumerates four or five conditions under which flame will pass through the gauze of a safety lamp.

In this connection, I recall an interesting experiment performed by M. Marsaut, a few years ago, in France. The experiment is a simple one designed to show that flame will pass through the mesh of the gauze of a safety lamp, owing to an explosion within the lamp and when the gauze is perfectly cool. In this experiment, an inverted belljar was filled with pure gas (methane) and a safety lamp raised quickly into the gas filling the jar. The fresh air contained in the combustion chamber of the lamp now forms a highly explosive mixture with the gas entering the lamp and an explosion follows that forces the flame through the gauze.¹

The Marsaut experiment has not received the attention that it deserves, although its author explains that

¹Regarding the work of testing for gas, attention has frequently been called, in *Coal Age*, to the fact that the moment of greatest danger occurs when withdrawing a flaming lamp from a body of firedamp. The combustion chamber of the lamp, in this case, is filled with the gas and the entrance of fresh air, as the lamp is being withdrawn, creates a highly explosive mixture within, which is liable to explode and force the flame through the gauze. This illustrates the same idea as that brought out by the Marsaut experiment.

the result was "due to the cannon effect set up by the explosion within the lamp, the force of which, being confined within the chimney, can only escape at a high velocity through the mesh of the gauze and cause the failure of the lamp."

CONDITIONS IN MINING PRACTICE THAT MAY CAUSE A LAMP TO PASS FLAME

Again, the Prussian Safety Lamp Commission proved that a Clanny gauze with a smoke cap was more dangerous than one without the smoke cap, owing to the top of the gauze chimney becoming more clogged with smoke particles, which are liable to transmit the flame through the mesh. Likewise, a lamp exposed to a dust-laden atmosphere may pass flame at a very low velocity, owing to the accumulation of the fine dust on the mesh of the gauze.

A mixture of 4½ per cent of gas in the air, when dust is present, has been found to pass flame, at a velocity of only 6 ft. per sec., in the short space of 10 sec. This occurred in a Davy lamp, but it is probable that the same is true of a Clanny lamp. It cannot be claimed that experiments performed in the laboratory, showing lamp failures, do not prove like results in ordinary coal-mining practice, since there are on record a number of actual failures of safety lamps when in use in the mines.

EXPERIMENTAL VS. PRACTICAL TEST OF LAMPS

My observation leads me to conclude that a lamp is more liable to fail when in actual use in the mine than when subjected to an experimental test in the laboratory. A lamp that was known to have failed in the mine did not pass flame when subjected to a later test, under a similar velocity, in the testing chamber of the laboratory. The cause for this was probably due to the presence of dust in the mine air and its absence in the test made in the laboratory.

I am drawing attention to these facts relating to the passage of flame through the mesh of a safety lamp to show that there are numerous conditions other than the heating of the gauze that will cause the failure of the lamp when in use. M. Marsaut was so convinced of the danger attached to a single-gauze lamp that he added a second superimposed gauze, and even a third gauze, for increased protection in a highly gaseous mine. The double and triple gauzes are the characteristic features of the Marsaut safety lamp.

It would seem that the subject of safety lamps has not received as much official attention from the Federal Bureau of Mines as we could expect. However, when the Miners' Lamp Committee of the British Home Office makes its report, these matters may be shown to have more than an academic importance. Let us hope that such will be the case.

JAMES ASHWORTH,
Consulting Mining Engineer.

Livingstone, Alberta, Canada.

Promotion of Ambitious Workers

Letter No. 10—The subject of promotion of workers is one that appeals to all classes, but more particularly to the young coal miner who is ambitious and anxious to get away with a good start in life. In the discussion of the subject in *Coal Age*, it is interesting to note the many viewpoints expressed. These varying views are educational in a way, as they give us an insight into

the difficulties many young men experience when trying to better their condition; and the narration of these should assist mine managers to gain a broader understanding of the merits of promotion for their workers.

Turning the matter over in my mind, it appears to me that the difficulty of the situation is the natural shortage of responsible positions and vacancies. As compared with the number of aspirants for these positions, the number of places available to them is relatively small. This aspect of the case, however, is not as serious as it was a few years ago; because of the higher wages now paid for general labor, which gives men less incentive to strive for higher positions.

IN FILLING VACANCIES, THE QUALIFICATIONS AND FITNESS OF EACH APPLICANT SHOULD BE CONSIDERED

It is a difficult matter, at times, to fill a vacancy without causing disappointment to someone. However, in order to maintain an efficient organization and encourage a spirit of mutual co-operation among the employees, it is necessary that every applicant for the position should be fully considered. Family connections or influence of any kind should not control the selection of the man for the place. On no account, should an outsider be chosen to fill one of the minor vacancies underground. Such positions should be open only to the men working in the mine, and the choice should be determined by the qualification and fitness of the several applicants.

In a mine where these conditions do not prevail, however, I would advise the ambitious young man to seek employment in another field where his capabilities will receive just recognition. There is always a demand for capable men, and the experience gained by working under varying conditions in different mines will always be an asset that will prove valuable to the man, in his future career.

True merit has always had its reward. If the ambitious worker will only realize this and keep pegging away, fully determined to gain recognition, success will assuredly come to him. Competition is so keen that no coal company can afford to hold a man in a responsible position who is not thoroughly efficient. For that reason, every worker must stand on his own feet, knowing that his rise or fall will depend on the results of his work.

SUCCESSFUL MANAGEMENT RECOGNIZES THE HUMAN ELEMENT IN THE TREATMENT OF MEN

The mine manager's ability, today, is not measured by his knowledge of mining alone; he must be a man who understands that running a coal mine is no one-man's job, and that his own success or failure is governed to a large extent by the work of his subordinates. The human element must be considered and fully understood. Unless there is a measure of co-operation between the mine manager and his subordinates, and between these subordinates and the other employees, it is impossible to get efficiency. When all has been said and done efficiency is simply having the right man in the right place.

Let me say, here, that it is not good policy for any company to appoint an outsider to an official position if the said position can be filled by promoting some ambitious employee. The mere fact that the ability of one man has been recognized and rewarded will give others encouragement to study and prepare themselves for future promotions. In every such case, the organization is strengthened and improved. In order to get

results, under present-day conditions, the mine manager must have his entire force, in and around the mine, working in one direction; and, to accomplish this, he must take a personal interest in every employee, from the trapperboy up, and assist in every way possible those who are anxious to improve their position in the mine.

IMPORTANCE OF REWARDING ABILITY AND PUSH WHEN OBSERVED IN A SUBORDINATE

The competent mine manager is never afraid of the ability or push of any of his subordinates; and where it can be proved that the mine foreman actually discharges a subordinate who shows initiative, the company should lose no time in filling his place by giving it to the subordinate. The same rule applies to the subordinate's dealings with the men who are working under his charge.

Where a man is capable he is never afraid of losing his position. The position should, without exception, seek the man and, invariably, the capable man can get his price. To attain this enviable position, however, means many years of hard, conscientious work and study, and strict attention to duty. Loyalty to one's company is also a big factor. The path to success is open to every man who has the grit to smile at disappointments and rise above them. The man must have faith in himself; no man is a failure, until he decides so himself. The young man who relies on his family connection or influence for advancement is going to meet with many disappointments. Let me advise him here to get some well-defined object in view, and go after it fully determined in his own mind that he is going to reach his objective, and he most assuredly will.

J. H. McMILLAN, Supt.,

Jasper Park Collieries, Ltd.

-Pocahontas, Alberta, Canada.

[This letter will close the discussion, "Promotion of Ambitious Workers."—EDITOR.]

Lawful Examination of a Mine

Letter No. 12—I have been greatly interested in the discussion running in *Coal Age*, regarding the lawful examination of a mine. For the past nine years, I have worked under the ruling contained in the mining laws of Ohio and believe that there is no better system in use anywhere, in any coal-mining state. At the present time, the mining of coal, in Ohio, is regulated and controlled by the Industrial Commission, who are responsible for the enforcement of the state mining laws.

Under the heading, "Competent Person or Persons Shall Be Designated as Fireboss," Sec. 925 of the mining laws of Ohio, reads as follows:

"The owner, lessee or agent of a mine generating firedamp so as to be detected by a safety lamp shall designate a competent person or persons as fireboss or firebosses, who shall make a thorough examination of each working place in the mine every morning with a standard safety lamp, not more than three hours prior to the appointed time for employees to enter the mine. As evidence of such examination, the fireboss shall mark with chalk upon the face of the coal, or in some conspicuous place, his initials and date of the month upon which the examination was made. If there is any standing gas

discovered, he must leave a danger signal across every entrance to such place."

My opinion is that the requirements of this section far exceed those of any system of mining laws that will permit a fireboss to enter a mine and start his examination from six to eight hours before the time appointed for the men to enter for work. Mention has been made of the mining laws of Illinois, which permit the fireboss to start his examination of the mine "within eight hours preceding the time the dayshift goes on duty." In my judgment, such a law should be revised, and the sooner it is done the better.

MINE FOREMEN AND MEN MUST RESPECT AND OBEY THE INSTRUCTIONS OF A FIREBOSS

Another important feature in the work of firebossing is the carrying out of the orders of the fireboss. When the examination has been completed and the fireboss has entered his report in the book kept for that purpose, and has informed the mine foreman of the conditions in the mine or section of the mine he has examined, he should have the full assurance that his suggestions are respected and his orders are carried

out and obeyed. It must be admitted that numerous accidents have resulted, in different states, owing to some persons having been dilatory in not performing their duties, or where the orders given by the fireboss have not been obeyed. This is a matter that calls for the earnest consideration of mine officials.

I can fully endorse what is said by "Ben," of Thomas, W. Va., in his letter, *Coal Age*, Feb. 26, p. 415. He states, "Each section should be of such size that an assistant foreman could have complete supervision of its working places in each shift"; and adds, "At a large mine all section foremen should meet two hours before starting time, enter the mine at the same time, and again gather on the outside to compare notes of their examinations, before permitting the men to enter the mine." While this system would require more mine examiners and increase the expense, I fully believe that, if required by law, it would have the effect of reducing the number of accidents, especially where bad conditions exist.

JAMES H. TAYLOR.

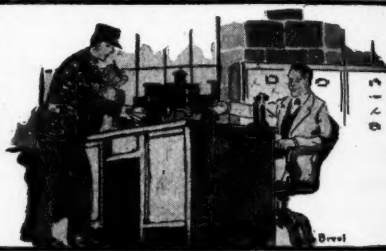
Poston, Ohio.

[This letter will close the discussion, "Lawful Examination of a Mine."—EDITOR.]



INQUIRIES OF GENERAL INTEREST

ANSWERED BY JAMES T. BEARD



Short-Circuiting or Obstructing Air in Fan Ventilation

A short time ago the question came up, at one of our mine foremen's meetings, regarding the effect produced on the water gage and the speed of the fan by either short-circuiting the air current or obstructing its flow in the airway. This question was referred to *Coal Age*, at the time, and the reply given stated that the short-circuiting of the air cut out the mine resistance and reduced the water gage, but the air volume was largely increased, assuming the power on the air remained constant. On the other hand, obstructing the airway increased the resistance and the water gage and decreased the volume of air passing.

In response to an inquiry sent to the manufacturers of the fan, a bulletin was received bearing on the point in question. Inasmuch as some of the statements in this bulletin appear to be at variance with the generally accepted theory as set forth in textbooks, I desire to make a few quotations from this bulletin, hoping for a thorough discussion of the matter. One statement reads as follows:

There also seems to be a misunderstanding, among certain mining men, regarding the operation of a fan under certain conditions. For instance, some men keep a watchful eye on the water gage, in the hope that they will detect falls in their airways. This practice comes from their belief that as soon as the airways become clogged, the water gage goes up. But this is not true, for a fan when running at normal capacity, and at a constant speed, produces a constant pressure, and to look for falls in the airways with the fan running at normal capacity is misleading.

Again, the bulletin states:

To illustrate: Let us suppose a fan of given dimensions to be running at a certain speed and producing, say, 3 in. water gage in the fan drift. Now, if the fan drift leading to the mine is closed off, any increase of water gage will show that the intake or discharge area of the fan is too small. This condition is described by saying that the fan is working above its normal capacity and is therefore mechanically inefficient. If the intake and discharge areas of a fan are properly proportioned to its other dimensions, or when a fan is not working above its normal capacity, the same speed of fan will produce the same water-gage reading in the fan drift whether or not the air is passing.

Again, if the air current is short-circuited when the fan is working up to its normal capacity, so that the circulation does not pass through the mine but is discharged from the fan drift into the atmosphere, a larger volume of air will pass through the fan and, as a result, a greater portion of the depression due to the fan's action, will be absorbed within itself. The reading of the water gage will then be lower than when the air current is circulating through the mine, the speed of the fan being the same in each case. Notice, however, that if the fan is not running up to its normal capacity when the air is short-circuited, no appreciable effect will be observed in the reading of the water gage, until enough air is short-circuited to bring the fan up to its normal capacity.

After a discussion of the statements just quoted, it was decided to experiment, for ourselves, on the fan in question. Accordingly, the first day that the mine was idle, the mine foreman, electrician, two assistant foremen and myself started for the fanhouse. The assistant foremen were sent to the bottom of the shaft, while we took readings of the speed of the fan and the water gage and quantity of air produced, in the fan drift.

It should be stated, here, that there were three roads leading to the bottom of the shaft. The men had already blocked up two of these roads with brattice

cloth, but there was, no doubt, air leaking through these stoppings, as they were by no means tight. The results were as follows:

	Speed of Fan r.p.m.	Quantity of Air c.f.p.m.	Water Gage in.
Normal working.....	147	56,000	1.2
Two roads blocked.....	147	46,000	1.4
Opening 25 sq. ft.....	148	21,750	1.5
Airway closed.....	150	1.6
Air short-circuited.....	145	0.6

These results appear to show that when the air-course was obstructed the water gage was increased and the air volume diminished. The fan running normally at a speed of 147 r.p.m. produced 56,000 cu.ft. per min., against a water gage of 1.2 in. Blocking off two of the roads reduced the air volume to 46,000 cu.ft. per min. and increased the water gage to 1.4 in., the speed of the fan remaining practically the same.

Now, when the opening in the third airway was reduced to 25 sq.ft., the air volume was reduced to 21,750 cu.ft. per min., and the water gage increased to 1.5 in., while the speed of the fan was increased to 148 r.p.m. Finally, when the last airway was closed as completely as possible so as to cut off the air, the water gage rose to 1.6 in. and the speed of the fan increased to 150 r.p.m. The leakage of air through the improvised stoppings could not be measured in the fan drift.

In the last test, all of the airways were open and the air short-circuited, by opening the doors at the foot of the shaft. The result was a large increase of air volume, for which no satisfactory measurement was obtained. The water gage dropped to 0.6 in. and the speed of the fan decreased to 145 r.p.m. This is in exact accordance with the theory that has often been stated in *Coal Age*, but it appears to be at variance with the statement I have quoted from the bulletin of the manufacturer of the fan.

May I ask if *Coal Age*, or its readers, can throw some further light on this interesting subject and explain what is meant by "normal capacity of a fan." This should lead to an interesting discussion.

McIntyre, Pa.

THOMAS HOGARTH.

The results obtained in the experiments performed by this correspondent agree with the claim often made in *Coal Age*, that when the air current produced by a centrifugal fan is short-circuited at the foot of the shaft, the water gage drops and the air volume is greatly increased. The passage of this larger quantity of air through the fan causes an increased resistance and a larger proportion of the power is absorbed within the fan itself, which leaves a less power available for turning the fan and causes it to run slower.

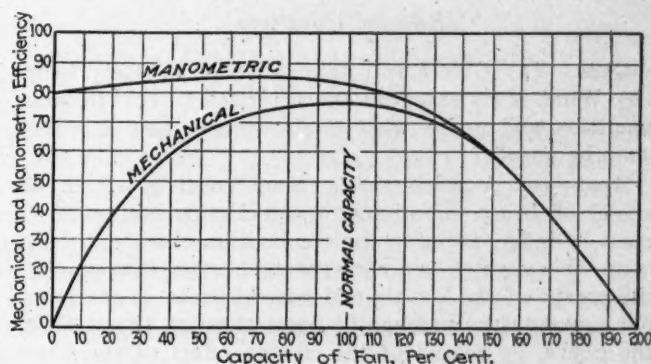
On the other hand, any obstruction in the air-course, as a considerable fall of roof or otherwise, increases the resistance in the mine and the water gage rises accordingly. In this case, the air volume is reduced, less power is absorbed within the fan and a larger amount of power is thus available for turning the fan, which then runs faster.

Referring to the statements quoted from the bulletin, it appears that reference is there made to a particular type of stepped, multiblade fan, whose water gage and air volume are rated on a certain so-called "normal capacity." It would seem that this normal capacity is an arbitrary rating, depending on the speed of the fan that will give a maximum mechanical effi-

ciency, according to the size of its intake and discharge openings.

Judging by the statement quoted from the bulletin, the claim appears to be made that where these openings are properly proportioned to the other dimensions of the fan, the water gage is a function of the speed, regardless of whether the fan is circulating any air or not. This statement does not accord with our practice in fan design, which has been to regard the water gage as a function of the mine resistance. To eliminate the resistance against which a fan must operate is to eliminate the water gage in the fan drift.

However, it is quite possible that the type of fan referred to in this inquiry does not conform to the



principles that govern a fan whose dimensions are proportioned in accordance with and dependent on the mine potential or resisting power of the mine, as determined by the ratio of the area of passage in the mine, to the cube root of the rubbing surface of the airways, or the ratio of the quantity of air in circulation to the cube root of the power on the air. The two methods of computation are so radically different that there is no comparison to be made between them. The author of the bulletin, in explanation, writes as follows:

I term 100 per cent as the normal capacity of the fan; that is, the fan will work efficiently 20 per cent above and below this point. If the airways are entirely closed off, of course no air will be passing and the efficiency of the fan will be zero; but a certain static pressure will be produced in the drift.

Now, if the drift is opened up so that, say, 30 or 40 per cent of the normal capacity of the fan can pass, the water gage will rise a little; but this is scarcely worth while taking into consideration. In fact, the average mine man would not detect it on his water gage reading. If we keep on opening up the mine, until sufficient air is passed to bring the fan up to its normal capacity, the water gage will be about the same as when the mine is entirely closed off.

Beyond this point, however, if we keep on lessening the mine resistance, by short-circuiting the air, naturally part of the depression produced by the tips of the blades will be consumed in drawing the air through the fan itself, which causes a fall of the water gage in the mine drift. This will continue, until the mine is thrown wide open and the static gage is reduced to zero, as is also the efficiency.

According to the bulletin, in the former case, the fan would be working above its normal capacity and, in the latter case, it would be working below its normal capacity. The same author presents a diagram representing the characteristic curves of a stepped, multiblade fan, which we have reproduced here for a better understanding of the author's meaning, in the quotations from the bulletin mentioned. The diagram shows that, at normal capacity, the fan has a mechanical efficiency of 77 per cent and a manometric efficiency of 83 per cent. The question is worthy of thoughtful discussion that it is hoped will reveal some new principles in fan ventilation.



EXAMINATION QUESTIONS

ANSWERED BY
JAMES T. BEARD



Indiana Firebosses' Examination Held at Indianapolis

(Selected Questions)

Ques.—(a) Give a full description of a safety lamp. (b) What is its essential characteristic? (c) In what condition and under what circumstances may a safety lamp be unsafe?

Ans.—(a) A mine safety lamp consists of an oil vessel of brass, aluminum or steel, surmounted by a glass cylinder, forming the combustion chamber of the lamp, above which is a wire-gauze chimney that permits the escape of the hot air and gases formed in the lamp, but prevents the passage of flame through the mesh of the gauze, by reason of the cooling effect of the wires of the gauze. In the Davy lamp, the glass cylinder is omitted and the wire-gauze chimney is attached directly to the oil vessel. A small rod or "pricker" runs up through the oil vessel for use in raising or lowering the wick. Practically all other types of safety lamps, like the Clanny, have a glass cylinder surrounding the flame.

(b) The essential characteristic of all safety lamps is the isolation of the flame by wire gauze, which protects all openings to the lamp.

(c) A safety lamp is unsafe when any part is defective; the lamp improperly assembled or carelessly handled; the gauze dirty or allowed to become heated by too long exposure to gas; or the lamp exposed to a strong air current or blast of air. A safety lamp should never be entrusted to an incompetent person.

Ques.—(a) Describe in full your whole procedure in the inspection of a gaseous mine. (b) What unsafe conditions would you observe other than the presence of firedamp?

Ans.—(a) Before entering the mine, inspect and prepare the safety lamp for use. Observe that the ventilator is working properly and note the reading of the water gage as indicating a normal condition of the circulation underground. Then, having entered the mine, proceed to the bottom of the downcast shaft or the main intake air-course and observe that the usual volume of air is passing into the mine.

Beginning at the intake end of the section of the mine to be examined, follow the air current while inspecting each working place, traveling road or airway. Examine each place for gas and other dangers that may be present. Write the date at the face of each place examined, as evidence of your presence, and observe what timber is on hand and coal loaded.

When the examination is completed, on returning to the shaft bottom, enter in the book kept for that purpose a full report of the examination, stating what dangers, if any, have been found and where located. Date and sign the report, after which remove from the board the checks of those men whose places contain any danger. This must be done before permitting the

men to enter the mine. The checks taken from the board are given to the mine foreman, who is informed of the conditions as they exist in the mine.

(b) Besides making the usual examination for gas, the fireboss should carefully inspect the roof and working face to detect any bad top or loose coal that may be dangerous, and observe if any timbers have been discharged by a shot the previous night.

Ques.—(a) Give the essential requirements for a well ventilated mine. (b) Why is it necessary to take measurements of air at certain intervals throughout the mine?

Ans.—(a) The volume of air in circulation must be sufficient to comply with the requirements of the state mining law and as much more as may be necessary to dilute and sweep away the gases generated in the mine and make it safe for work. The air current must be conducted so as to sweep each working face and all void places and falls, so as to prevent the accumulation of gas. To do this will require air-tight stoppings, doors and air bridges and the building of brattices wherever this is necessary to carry the air forward to the face or make it sweep the falls.

(b) Air measurements taken at different points on the air-courses and throughout the mine serve to show where air is leaking through poorly built stoppings, doors, etc. These measurements also show the proper distribution of the air between the several sections or districts of the mine.

Ques.—(a) What elements determine the ventilating pressure in a mine? (b) What determines the resistance? (c) How is the resistance measured?

Ans.—(a) The ventilating pressure (*pa*) is the total pressure producing the circulation and is determined by the resisting power of the mine. The ventilating pressure is equal to the unit pressure (lb. per sq.ft.) multiplied by the area of the airway, in square feet.

(b) The resistance of a mine or airway is determined by the extent of its rubbing surface and the velocity of the air current, which, in turn, depends on the power producing the circulation.

(c) The resistance is measured by observing the reading of the water gage in the fan drift. This reading, in inches, is multiplied by 5.2 and that product by the sectional area of the fan drift, in square feet.

Ques.—What is a booster fan? Do you consider a booster fan practicable? Give reason.

Ans.—A booster fan, in mine ventilation, is a small secondary fan, installed at some point in the mine where the circulation of air is deficient. Its purpose is to assist the work of the main fan on the surface.

A booster fan is only practicable as affording a means of reducing the leakage of air through poor stoppings, in a section of a mine that is about finished, and where it is cheaper to install a booster than to repair the stoppings, which will be needed but a short time.

Freight Cars Are More Widely Scattered Than Ever

Car Service Commission Invested with Plenary Powers in Efforts To Secure Return of Cars of Special Type

RAILROAD freight cars have fallen into worse need of repair and are more widely scattered than at any time since Jan., 1918, when the railroads came under Federal control, according to an article appearing in the current issue of *American Railroads*, the official organ of the Association of Railway Executives.

Regarding the efforts being made by the Commission on Car Service of the American Railroad Association to reassemble scattered rolling stock the article states:

"The Commission on Car Service, acting under an agreement signed by the various railroads to abide by and enforce the car service and per diem rules and authorizing the Commission on Car Service to act as its agent in all car service matters, is making an effort to secure the return of special types of cars as expeditiously as is practicable in view of all the conditions, but in order to meet emergencies it is invested with plenary power to suspend or permit departures from the rules requiring the return of cars to the home roads and to transfer cars from one railroad or territory to another when necessary to meet traffic conditions.

"It is also authorized to exempt when necessary cars of any type from the provisions of the rules and to provide other regulations under which such cars shall be handled and it is directed to co-operate with the Interstate Commerce Commission in all car service matters.

"Normally, approximately 50 per cent of the freight cars are away from home, but usually the bulk of them are on the lines of direct connections which are likely to use them for a return load. At the beginning of Federal control, according to the recent annual report of the Division of Operation of the Railroad Administration, 44 per cent of the freight cars were on home lines. On January 1, 1919, the figure stood at 26.6 per cent.

"Special attempts were made in the early part of 1919 to relocate cars more in accordance with ownership, with the idea of getting the cars to the home road so that extensive repairs and betterments might be completed, and also in part because of the prospective return of the railroads to private management.

"By July 1, 1919, 31.7 per cent of the cars were on home lines, but at the present time the number of cars on home lines has again declined to about the same point as January 1, 1919, or approximately half of what may be considered the normal condition. The other 75 per cent of the cars are scattered throughout all parts of the country.

"Exact information as to the present condition of the equipment is not available because the roads have not seen many of their own cars for a long time, and the entire subject is a matter of dispute between the railroad companies and the Railroad Administration, which was obligated by its contracts as well as by the Federal Control Act to return the property of the railroads in the condition in which it was taken over or to pay for any deficiency.

"During January of this year out of 2,453,227 freight cars on the lines of the railroads under Federal control

6.6 per cent were reported as unserviceable, as compared with 5.8 per cent during January, 1919, and 5.4 per cent in January, 1918, according to the reports of the operating statistics section of the Railroad Administration. These figures did not include 19,300 cars set aside and classified by the Railroad Administration as condemned cars, which it would not repair, but held out of service until the owning companies should agree to their dismantling."

Railroads Call Meeting To Arrange To Continue Soft-Coal Pool

Lines Using the Ports of Baltimore, Philadelphia and New York Contemplate Voluntary Plan of Control

AS President Wilson's proclamation requiring all bituminous coal for transshipment to be consigned to the pools of the Tidewater coal exchanges at Atlantic ports will expire April 30, the various railroads transporting bituminous to the ports of Baltimore, Philadelphia and New York have called a meeting of interested shippers and carriers to be held in the Bellevue-Stratford Hotel, Philadelphia, at 2 p.m. Wednesday, March 31.

Consideration will be given at this meeting to the question of continuing by voluntary action the handling of bituminous coal for transshipment through the several pools after April 30. As this is of great importance to shippers and receivers as well as the railroads, a large attendance of the various interests involved is expected.

The Wholesale Coal Trade Association of New York, Inc., sent the following notice to its members calling attention to the proposed meeting: "Pursuant to the following resolution adopted at a meeting of the principal Tidewater bituminous coal railroads using the Ports of Baltimore, Philadelphia and New York, a meeting of shippers and transshippers of bituminous coal through these ports and of the railroads serving them is hereby called for Wednesday, March 31, at 2 p.m., at the Bellevue-Stratford Hotel, Philadelphia, Pa.

"Whereas, by the withdrawal from the Tidewater Coal Exchange after April 30, 1920, of the railroads serving Hampton Roads, it is necessary to consider the result as to the Tidewater Coal Exchange at the Northern Ports:

"Resolved: That Tidewater and originating bituminous railroads serving the ports of Baltimore, Philadelphia and New York, believe that an effort should be made to continue the pooling of Tidewater bituminous coal.

"While these railroads are averse to continuing the sole financial support of the exchange, as at present, they are willing to bear a fair share of the cost of operating it, if it can be continued with assurances of sufficient tonnage.

"To this end a meeting of Tidewater bituminous coal shippers and transshippers using the ports of Baltimore, Philadelphia and New York and of the railroads serving those ports and originating the coal, should be called at the earliest practicable moment to consider what arrangements can be made between the railroads and the shippers and transshippers, for the continuance of pooling."

Railroads Ordering Much Equipment with Return to Corporate Owners

Inquiries Indicate More Extensive Orders Are About To Be Placed—Huge Terminal Projects Are Expected Soon—Steel Work Delayed by Car Shortage—Prices Holding Many Orders Back

INQUIRIES forecasting extensive purchases of equipment are making their appearance with the return of the railroads to their corporate owners. A flood of orders was expected with the relinquishment of federal control, but this expectation has not yet been realized. The volume of orders for equipment has been delayed by the following factors:

1. Expectation of a drop in iron and steel prices. It is the opinion throughout the country that the prices now holding have reached their peak and will take a final downward turn shortly. In fact, a few orders have been placed recently in the steel trade in which it was stipulated that the price should be that quoted at the time of delivery.

2. Decision as to freight increase shortly to be handed down by the Interstate Commerce Commission.

3. Extension of credit for the purpose of purchasing new equipment. It is believed this extension of credit will be somewhat increased by the decision handed down recently by the Supreme Court to the effect that the properties of carriers are to be valued at present prices.

4. Present wage situation and scarcity of labor. The present wage is to be maintained for six months longer by act of Congress, but the scarcity of labor is expected to be relieved by a reduction of wages in other quarters.

The withdrawal of the dissolution suit against the U. S. Steel Corporation has not been a market factor. While exports of iron and steel showed an increase in February in the face of unfavorable rate exchanges so far this month the situation has reversed. In fact, European business is almost at a standstill.

CAR SHORTAGE IS AN IMPORTANT FACTOR

Production is now at the highest rate it has been in a year and the prospects for a further increase are good. Of the finished products, sheets are the scarcest.

In the Pittsburgh district one of the greatest factors operating right now is the shortage of cars—the car supply being about 40 per cent of normal. This acts directly on the pig iron output, as the deliveries of coal to the blast furnaces are away below normal.

Although the making of extensive purchases of railroad equipment is being held up, necessary purchases have been made or are in way of being negotiated. Since the first of the year about 1,200 locomotives have been bought or are being negotiated for at the present time. Contracts for 25,000 cars are expected at an early date.

There are three great terminal projects, one already under process of construction and construction on the others is expected to start soon. Of these, the Chicago Union Station program, which has been under way for some time, will involve an outlay in construction costs alone of some \$20,000,000, and the purchase of 17,000 tons of fabricated steel for the main structure.

The Markham freight yard of the Illinois Central, which is now under construction, is a \$4,000,000 improvement and is regarded as a prime need of the business world. Electrification of the Illinois Central lines in Chicago and the construction of new passenger and freight station facilities involving \$80,000,000 is under way. This expenditure will, however, be spread over a period of years—the completion of the electrification program having been set for some 20 years hence. Also the Cincinnati Southern R.R. has drawn up tentative plans for the construction of union terminals in Cincinnati, which they will shortly submit to the officials of other roads entering that city. This project, if carried through, calls for an initial expenditure of from twenty to thirty million dollars.

LARGE ORDERS FOR FREIGHT CARS TO BE PLACED

The general opinion holds that upward of 100,000 freight cars will be ordered within the next month or two. The market for locomotives and passenger cars is expected to be proportionate. Among car purchases recently made are to be noted the following: Atchison, Topeka & Santa Fe, 2,500 refrigerator cars and 500 gondolas; the Erie, 1,000 box cars; Southern Pacific will construct 1,000 box cars; Canadian National Railways have ordered 1,000 box cars from this country and 1,000 from Canadian firms; Canadian Pacific has placed an order for 1,500 box cars with Canadian firms.

Among purchasers of locomotives are St. Paul, 100; Canadian National Railways, 55; Great Northern, 45; St. Louis Southwestern, 10; Santa Fe, 50; New York Central, 280.

Compared to the above are to be noted these prospective purchases: Illinois Central, 1,000 gondola cars; Missouri Pacific, 2,000 box cars; Elgin, Joliet & Eastern, 700 gondola cars; Seaboard Air Line, 2,000 fruit and vegetable cars; Canadian Pacific, 1,000 box cars; Midland Packing Co., 1,000 refrigerator cars; Missouri, Kansas & Texas, 40 passenger cars; Roger Ballast Car Co., 500 freight cars; Union Pacific, 65 passenger cars; American Refrigerator Transit Co., 2,028 refrigerator cars; Grank Trunk, 3,000 automobile cars and 2,000 flat cars; Rock Island lines, 325 freight cars and 75 cabooses; N. Y. Central lines, 15,500 freight cars and 261 passenger cars; Northern Pacific, 1,000 ballast cars.

The St. Louis, San Francisco and St. Louis Southern expect to be in the market for 1,000 box cars each; the Louisville & Nashville will construct 1,000 box cars; the Chicago, Burlington & Quincy is in the market for 4,000 freight cars and 40 passenger cars, and the Fruit Growers Express is in the market for 500 refrigerating cars. As for locomotives, the Chicago & Northwestern contemplate the purchase of a large number, the Illinois Central, 110; the Missouri Pacific, 5; Santa Fe, 25. The Pennsylvania R.R. has already let contracts for 186,000 tons of rails and the Big Four for 36,000 tons.

Union Said To Be Back of Armed Raid Against Guyan Region

Governor Cornwell Appoints Investigating Commission—Testimony Heard March 13

WHEN another hearing was held, on March 13, by the commission appointed by Governor Cornwell of West Virginia to probe conditions in the Guyan region and to investigate the attempted invasion of Logan County by armed miners last September, only four witnesses out of about forty summoned put in an appearance. Members of the commission are Major T. B. Davis, acting Adjutant General, and Colonel George S. Wallace.

The testimony of witnesses heard on March 13 tended to show that in many instances where organizers of the United Mine Workers had called meetings of the Kanawha locals these locals had called out the miners as a preliminary to a march on the Guyan field.

The first witness heard was W. H. Morris, superintendent of the Cabin Creek Consolidated Coal Co.'s mines at Kayford. He said on the stand he had had no previous notice of the men being called out but had asked Tarretta, president of the local union, why the men were ceasing work. Tarretta told him that the men were going to the Guyan Valley because women and children were being killed in that field. When Tarretta was asked the source of his information he named "Keeney and Mooney." Morris said he supposed Tarretta was speaking of C. F. Keeney, the president of the United Mine Workers of America in that district.

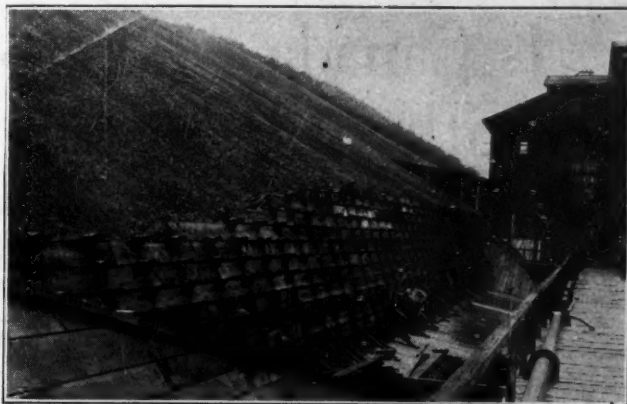
According to the testimony of H. H. O'Neal of St. Albans, superintendent of the Sharlow mine of the Sharlow Gas Coal Co., on Big Coal River, on the day prior to that on which he was officially notified that the miners proposed to drop their work, he had observed Charles Workman, connected with the headquarters of District 17, United Mine Workers, talking with the mine workers. Shortly afterward he was waited upon by a committee who notified him that the miners would not report for work.

Notice was given him by a committee that the miners were going to cease work for several days, according to the testimony of W. A. Otey of the Acme operations of the Cabin Creek Consolidated Coal Co. He added that following such notice the men actually quit work and that the mines were closed down for three days.

Bulkhead for Retaining Coal Piles

Bulkhead is Easily Constructed—Can Be Taken Down and Material May Be Used Over Again

A RATHER interesting revetment has been devised by the Philadelphia & Reading Coal & Iron Co., and is used at its storage yard near Schuylkill Haven, Pa. As will be seen from the accompanying illustrations the bulkhead is simple but strong. Only two men are required to construct it as no planks longer than 12 ft. are used and since these are only 2 in. thick the work of construction is easy. The planks are 10 in. wide and are set on a batter of 4 in. to the foot. The back braces themselves are 4-ft. long and

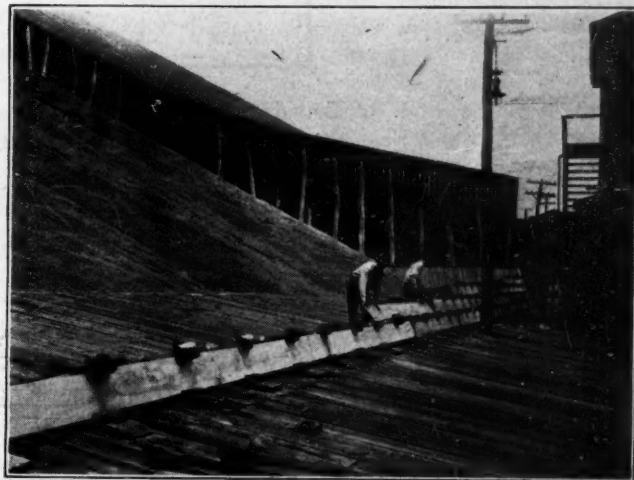


A BULKHEAD THAT IS PRACTICALLY FINISHED. This bulkhead 16 ft. high retains a bank of coal in one of the pockets at the Schuylkill Haven Storage Yard.

are spaced on 3-ft. centers horizontally while vertically they are on 12-in. centers.

Bulkheads of this type are built as coal is filled in behind them, since it is necessary that the back supports should be firmly imbedded in the coal. As the coal rises a man with a shovel sees to it that the coal is packed tight underneath the back braces since otherwise when weight comes on the bulkhead these members will have a tendency to settle, causing bulges in the retaining wall.

As the coal fills in behind it the bulkhead is built up until it reaches the maximum height of 16 ft. In



BUILDING A BULKHEAD TO RETAIN COAL. Showing the simple method used to construct these light bulkheads. This work is done by two men.

one of the illustrations it will be noted that the bulkhead has apparently reached its maximum height in the center and at one end, but at the other there is not as yet sufficient coal in place to allow the wall to be built higher.

It will be noted in the illustration in which the bulkhead is just being started that temporary braces are used to assist in keeping the face of the wall straight while in the figure showing the almost completed bulkhead, extra outside bracing at the bottom may be plainly seen.

One exceptionally advantageous feature of this bulkhead is that it can be taken down as easily as it is erected. The material may then be laid away and used over again. Except in placing the auxiliary braces no spikes or bolts are employed, the coal itself performing this function.

Is Canada Able To Fill Its Coal Needs Without Help from the United States?*

F. W. Gray Answers the Question with a Bold Affirmative—From Fort William, Westward, Canadian Rocky Mountain Coal Will Fill All Demands—Other Consuming Areas Can Be Supplied from Nova Scotia Mines if Canals Are Deepened To Accommodate Ocean-Going Vessels

THE political division of North America, as it finally evolved from the conflict of races and the divergent search for an identical ideal by two branches of the English-speaking peoples, bore no considered relation to the balancing of the mineral resources of Canada and the United States; and, in so far as coal supply is concerned, the boundary line was fixed before the national importance of coal in peace and in war was realized, and in ignorance of the coal resources of what used to be known as a part of the Far West, and is now known as the Canadian provinces of Alberta and British Columbia. If no national issues had arisen, and North America had developed its resources as one nation, then in the East the coal fields of Nova Scotia would have supplied the Atlantic seaboard with bituminous coal; British Columbia and Alberta would have supplied the Pacific seaboard and the Northwestern States, and the central territories would be supplied entirely from the great central coal field of Pennsylvania and the adjoining coal-yielding states.

"This is the natural scheme of distribution. Under such circumstances, however, it is certain that the territory which is now included within our own borders would not have reached so advanced a development as is the case, as the independent impulse of our own nationality would have been absent in the North, and industry would have concentrated itself further south and nearer the great central coal field. Also, it may be surmised, the coal production of Nova Scotia would have been upon a much larger scale than it is, while Sydney, N. S., would have been of greater importance and Montreal of lesser importance than is the case today.

CANADA WOULD LIKE TO BE SELF-SUFFICING

"But the national issue did arise. Canada is a nation, so acclaimed and recognized in the councils of the world powers, and although the boundary line between ourselves and our good friends in the United States has certain disadvantages to ourselves, we must make the best of accomplished facts.

"Our unevenly distributed and deficient coal resources, and to a large extent also their backward state of development, are a consequence of this country's determination to be a nation within the British Empire. We

have desired national independence, and have achieved it, and as our coal problem is an outcome and a concomitant of this desire and achievement, it becomes a principal duty of Canadians to work for the solution of our most pressing internal problem—the country's coal supply. North America is favored above the nations

of Europe in having a supply of anthracite, a most desirable fuel, more especially for congested centers of population, because of its smokeless character and great heat value. Unfortunately, Canada has no anthracite, so far as is known, with the exception of some anthracitic metamorphosed coals of relatively small tonnage in the West.

Argues that anthracite coal is a luxury and that Canada; like Europe, can do without it. Alberta alone has as much coal as the remainder of the western half of North America. Nova Scotia if adequately financed could mine twice as much coal as now and supply all Canada from its own mines to Lake Superior.

Therefore, if we use anthracite it must be imported.

"Large parts of Canada use bituminous coal and have never found it necessary to import anthracite. In many parts of Canada the burning of anthracite is not understood, and all grates and furnaces are adapted to the burning of bituminous coal. This being the case, and seeing that Europe gets along with bituminous coal, it can hardly be argued that anthracite is indispensable in those districts of Canada that can be supplied with bituminous coal from Canadian mines, and it follows that anthracite, under such circumstances, no matter how desirable, is a luxury.

"Assuming therefore that bituminous coal can entirely replace anthracite in Canada, we have only to consider over what extent the bituminous coals we have can be distributed, or how we can extend the zones of distribution of Nova Scotia and Western coal so that they may approach, and, if possible, meet.

PENNSYLVANIA SHOULD NOT CUT OUT ALBERTA

"So far as Canada west of Fort William is concerned, it surely can be equally well supplied with bituminous coal from the Western mines in Canada as with bituminous coal brought from Pennsylvania. Transportation distances do not enter into the question in the same grave manner as they affect Nova Scotia coal.

"West of the longitude of Lake Superior, there is as much bituminous coal in the province of Alberta alone as in the remainder of the western half of North America.

"Canada has not yet apprehended all the implications of the vast concentration of coal, and probably oil also, that exists in Alberta, and there is no compelling reason why the zone of distribution and use of Alberta bitumi-

*Synopsis of an article read by F. W. Gray, editor of the *Canadian Mining Journal*, on March 9, 1920, before the Canadian Mining Institute and entitled "Coal Supply of Canada."

ous coal should not be as extended as that of Pennsylvania and West Virginia. West of Fort William, Canada is more than capable of providing itself with all possible requirements of fuel.

"There remains for our consideration the possible radius of distribution of coal of Nova Scotia, but first something should be said as to the extent of the maritime coal deposits and the costs of mining them. The coal fields of Nova Scotia, while they are not relatively large, forming as they do only one per cent of Canada's coal resources, have never been worked to full advantage because of divided interest and scattered operation.

"The consolidation of operation that followed the formation of the Dominion Coal Company was the salvation of the Sydney field, but, unfortunately, consolidation did not go far enough to insure the maximum cheapness of production that it only can make possible. Sporadic, unco-ordinated, haphazard, and in some in-

on the part of the railways and large purchasing interests in Canada, and the failure of the Government in successive administrations to understand the paramount influence of coal supply on financial, military and naval security.

"For many years it was the policy of the Canadian railways to screw down the Nova Scotia coal operators to a minimum selling price, American competition being skilfully used to effect this. As an instance, it may be mentioned that Cape Breton coal was sold to the large railways in Canada delivered at Montreal at \$2.40 per ton, a figure that was—when the costs were correctly calculated—below the cost of production. The American coal, against which the Cape Breton coal competed on a rigorous basis of monetary cost, was itself sold at prices below the cost of mining to the American operator, a fact that the statistics of the United States Fuel Administration have since abundantly demonstrated.



SURELY BY THIS THE CANADIANS SHOW THEMSELVES TO BE OUR BLOOD KIN
For They Exhibit the Same Readiness to Sell and Chariness to Buy That Is Ours in Generous Measure

stances unwise operation of the coal deposits of Nova Scotia, have conspired to prevent a healthy growth in the annual production of this province.

One who, say in 1907, had looked forward to an annual coal production in Nova Scotia of ten million tons by 1920, could not have been regarded as unduly optimistic. Indeed, the objective of the Dominion Coal Company alone was at that time seven million tons annually, as those who refer to the late Mr. James Ross's remarks on this matter may confirm for themselves. The disappointingly small production of Nova Scotia during the past six years is chiefly a result of the war, and in that respect is a passing incident, but underlying, and altogether apart from the temporary effects of war, coal production in Nova Scotia has shown a recessive rather than an advancing tendency. What is the reason for this lack of vigor in the maritime coal industry?

"Without attempting to excuse the faults of operation that have hindered coal production in Nova Scotia, it may be answered that the non-progressive character of the industry is due to a general lack of encouragement

"Coal must always cost relatively more to mine in Nova Scotia than it does in the uniquely favored deposits of the United States, but a considerable part of the abnormally high mining costs in Nova Scotia at the present time is a result of too small a production of coal in relation to the capital invested in mine properties and transportation equipment. Nothing can so effectively lower the unit costs of production in Nova Scotia as an increase in the output of coal.

"The coal companies there possess equipment sufficient to handle from two to three million tons annually of additional coal so far as transportation and marketing facilities are concerned. Given a sufficient expenditure and the necessary lapse of time to open new collieries and extend the existing collieries, there is no reason why Nova Scotia cannot produce twice its present output of coal. Such a program, however, is possible only through the thorough-going consolidation of the operating coal companies, unification and concentration of direction, and very large capital expenditures on new mines and transportation equipment.

"Before investors can be induced to undertake the

heavy commitments indicated there must be a change in the attitude of the public and the railways toward the coal trade. C. A. Magrath, the fuel controller, in his final report, suggested that the railway companies should give contracts for their coal supply for a term of years, at cost, plus a fair percentage of profit, provided the coal companies make the necessary expenditure to equip and maintain properties with all appliances to enable production to be carried on at a minimum of cost.

"There is much to be said for this suggestion. It should be obvious that if in times of plenty our Canadian railways choose to starve our domestic coal mines by buying coal in the United States, or by demanding that the domestic producers meet United States competition, even though that involve a profitless transaction or an actual loss to the Canadian producer, our coal trade must live a precarious life, and will always be unready to meet the national emergency which may at any moment arise through political, social or diplomatic occurrences, or by reason of physical hindrances.

"Canada cannot be run as a successful economic whole if we ignore the obligations of nationality and insist on buying goods in the cheapest market merely because they are cheap. That way lies loss of independence and national disintegration.

NOVA SCOTIA'S UNDISCOVERED COAL RESOURCES

"The apathy of public opinion, if not actual hostility toward the struggling coal trade of Nova Scotia is not the less effective because it is based on ignorance and is against the best interests of Canada, for not only has it discouraged the expansion of the known coal fields, but it has deterred the search for the hidden coal fields, the existence of which is much more than a presumption.

"It would be entirely incorrect if we were to assume that the known coal deposits of Nova Scotia comprise the whole of the coal resources of that province, and here again there is reason to complain of lack of interest on the part of our governments, for no part of Canada has been so neglected during the past thirty years in the matter of geological exploration and mapping as Nova Scotia.

"As a case in point, one would mention the Springhill coal field, which has an unknown but extremely probable southward extension. The port of Parrsboro, which now serves the Springhill coal field, as known, is distant by water only some 90 miles from St. John, N. B., which place by the direct line of the Canadian Pacific Ry. is about 380 miles from Montreal. There is nothing insuperable in sending coal from this field to Montreal even by rail. Much longer hauls are made from the mines to the great cities in the United States.

"There is, however, no necessity to send coal by rail. It has in the past gone from Nova Scotia to Montreal by water at the rate of two million tons in the season of navigation, and could be sent in very much greater quantity by providing additional transportation equipment.

"The feasibility of sending coal by water from Nova Scotia to Montreal being already demonstrated, what can be done to cover the gap between Montreal and Fort William that is now entirely dependent upon United States coal? The cheapness of transportation from the United States central coal field to the Great Lakes and the adjoining territories arises from a combination of water transport and a preferred inland freight rate from the mines to the Great Lakes ports.

"The carriage of coal to Canada gives an outward load for the cars carrying iron ore from the Lake Superior ranges to Pittsburgh, which otherwise would make the outward journey in an empty condition. From such points as Ashtabula and Cleveland the transportation of coal to Canadian ports is cheaply effected by the water routes.

"Apparently the only way by which the radius of distribution of Nova Scotia coal can be greatly extended east of, say, the eastern extremity of Lake Ontario is by deepening the St. Lawrence channel so as to give access to ocean-going vessels to the Great Lakes.

"In such event Nova Scotia coal could compete on fairly even terms so far as cost of transportation is concerned with United States coal, as the all-water route from Nova Scotian ports to the point of unloading in a Great Lakes port would offset the preferred rail rate from the United States mines to the point of transshipment on the Great Lakes. This project is under investigation. So far, all the protests that have been made against the project are such as, if conversely applied, constitute arguments for its carrying out, so far as Canada is interested.

"It may be submitted that if the project is pronounced feasible it offers to Canada the opportunity to become thoroughly self-supplying and self-contained in bituminous coal supply. By affording to Nova Scotia a cheap water route for coal shipments, the coal miners there would be able to so enlarge outputs as to effectively reduce costs of production, and soft coal from Nova Scotia could be shipped far enough west to span the country and meet Canadian soft coal shipped from the western mines.

"The deepening of the St. Lawrence waterway is, however, not an immediate possibility, while the necessity to make Canada more independent in bituminous coal supply is indeed a most immediate urgency. What is feasible in the enlargement of distribution of Nova Scotia coal today? We can at least get back to the pre-war shipments to St. Lawrence ports of some two million tons annually.

NEED TO WIDEN RADIUS OF NOVA SCOTIA COAL

"Further, the same factors of increase in the cost of coal production have been at work in the United States also. There is also some encouragement in knowing that the Canadian people have to some extent awakened to the serious handicap we suffer from such entire dependence on the United States for coal, the danger of dislocation of our business, the threat of discomfort and physical danger that are always impending whenever interruptions to our coal supply occur. These new conditions suggest that an extension of the pre-war radius of distribution for Nova Scotia coal may be possible at the present time if energetic effort is made by the operators to recover and extend the St. Lawrence markets.

"The present moment offers an opportunity to the coal interests of Nova Scotia, and the transportation interests of Eastern Canada to work together to secure the future permanency of the coal trade of Nova Scotia, which, whether they appreciate it or not, is something on which the railways, the public and the government of Canada are equally interested with the coal operators and the mining population.

"The equipment of the Nova Scotia collieries is modern, and, apart from the duplication inseparable from divided interests, no grave criticism can be made of the

technical or business management of the operating properties, but some changes will be necessary before the most efficient production is possible.

"In particular, the present system of single shifts will have to be replaced by multiple shifts. The present practice of working the collieries for only eight hours in each 24 hours, often for only five days a week, does not permit of full returns from the capital invested, or the extent of underground territory developed.

"With regard to bituminous coal supply we may conclude that the problem is not so much one of a source of supply in Canada as it is one of deficient and difficult transportation. Canada has sufficient bituminous coal for its own needs, but the country has never undertaken to become thoroughly self-supporting from a conviction that this was not only desirable, but actually essential to national independence. It cannot, therefore, be said that our capacity to be self-supporting in bituminous coal supply has even been tested.

CANADA IS LOSING ITS HOLD AS COAL PRODUCER

"Far from expanding our coal output we are not even holding our own, and every year's record of Canadian coal outputs is more disappointing than the one preceding. How is it that the worst examples of dishonored bond issues in Canada are connected with coal-mining enterprises, and that in at least two well-known instances the capital invested by Canadian and British interests has been lost, and reorganization has been effected by United States capital?

"While a good many reasons could no doubt be advanced in explanation, the lack of any well-defined policy to foster production in Canada, *because of its national importance*, will explain the ill fate of many well-intentioned and promising coal mining flotations on this side of the line.

"It may be necessary to explain that this presentation of the Canadian side of the coal problem is not made in any spirit of hostility toward the United States. On the contrary, the generous and whole-hearted manner in which the U. S. Fuel Administration co-operated with the Fuel Controller of Canada in the desperate conditions of fuel shortage in 1917-1918 is gratefully remembered here.

"In this instance the United States shared its inadequate supplies of fuel with Canada in a manner worthy of all praise. The people of the United States, however, are the last people in the world to excuse a lack of enterprise in another people, and if they should criticise the backwardness of our fuel policy, it would be criticism well deserved."

Farrington Declares Insurgent Strikers Sought to Destroy Union

The insurrection of the southern Illinois miners in August, 1919, was a deliberate plan of the Socialist Labor party to wreck the organization of the Illinois United Mine Workers, according to a declaration made by Frank Farrington, Illinois president, in an address before the Twelfth District Convention at Springfield. He said: "Starting at a mass meeting held in Belleville, the trouble spread through the Springfield and Peoria district until 20,000 of our members were involved in a movement in positive defiance of every law and principle of our union.

"Some of the instigators of the trouble said it was a move to force the calling of a special district convention, while others asserted it was to force the operators to concede a new and improved wage agreement. Still others said it was to force the resignation of your district officials. As a matter of fact, it was an attempt deliberately planned by the Socialist Labor party to wreck our union.

"In the course of the rebellion local unions were looted of their funds and accredited leaders insulted, slandered and defied. Irresponsible committees rushed madly over the State, creating prejudice and dissension. Marching bands were sent out to mold destructive sentiment.

"If this union of ours is to survive we must have discipline in our ranks. Discipline is the very essence of unionism. Unionism does not mean individualism, where each shall have license to do as he will. Instead, it means that all shall be bound to act in union. Where there is no law, there can be no unity, and where there is no discipline, there can be no law."

Some, in West Virginia, Expect General Coal Strike

Just how the majority report of the Bituminous Coal Commission appointed by the President will be received by the United Mine Workers in West Virginia has not so far become apparent, officials of the union refraining from making any comment on the majority decision.

Inasmuch as the union is insisting upon a substantial increase in wages and working conditions more favorable than those enjoyed by the men in any other industry and is insisting that nothing short of that will be acceptable, there is much speculation in West Virginia fields as to whether there will be another strike in case the unanimous decision of the Coal Commission, if indeed, there is one, should not be up to the expectations of the miners.

What leads some to believe that preparations have been made for another strike was the announcement made the latter part of January by John L. Lewis, president of the United Mine Workers, that it was the intention of his organization to unionize the five non-union fields in West Virginia, such fields having furnished the bulk of production during the November strike and having been the weak spot in the armor of the United Mine Workers.

Selling price of *Coal Age* will on and after April 1 be 20c. for domestic circulation. The foreign subscription rate will be \$6 per year, or 25c. a copy.

President Wilson has removed the regulation of bituminous coal prices, to become effective April 1, and has transmitted the report of the majority of the Bituminous Coal Commission, notifying the mine workers and operators that this must be the basis on which the wage settlement must be made.

Is Price Regulation Any Longer of Legal Force?

Cushing Tells Wholesalers Progress Is Being Made in Meeting the Lever Act by Proof that It Is Unconstitutional, That Even If Still of Force It Must Be Enforced Reasonably—Legislation To Annul Act Is Being Promoted

ON WEDNESDAY, March 17, the New York Wholesale Coal Trade Association held a luncheon at the Whitehall Club, New York City, and discussed the various phases of the Lever Act. About 80 coal operators, sales agents and other trade representatives were present. C. Andrade, Jr., president of the association and treasurer of the Matlack Coal and Iron Corporation, presided and introduced George H. Cushing, of the American Wholesale Coal Trade Association, who gave an extended review of what had been done in reference to relieving the coal trade of the incubus which it carried as an outcome of the passing of the Lever Act during the war. Mr.

Cushing said that with certain officials in Washington "nothing smells so bad as a wholesale dealer in coal."

He stated that when the matter of providing coal to concerns who were unable to obtain fuel supplies arose, he offered to give the time of the staff of the American Wholesale Coal Trade Association and to supply the necessary money to provide for a proper distribution of the coal output, but he soon found that the attitude of the Administration was so strongly against the wholesaler that it was impossible to obtain a hearing.

In fact, the average man engaged in a Washington bureau felt perfectly safe in turning a deaf ear to any proposition that was made to him because he knew that his chief was as busy as is a lawyer who is conducting 50 or 100 suits at one time and hence could not spare the time to give any outsider a hearing. Every bureaucratic chief was disposed to leave matters to his subordinate, because he was so terribly rushed he could not attend to the matters himself.

Another attitude he found prevalent was that the Railroad Administration handled all the coal that was produced in the country and, therefore, knew more about the coal business than the operator, the wholesaler or consumer, and for that reason was more competent than any other to handle problems relating to the coal industry.

He stated on the other hand, that his dealings with the Federal Reserve Board afforded him no little gratification. When he called on W. P. G. Harding, the Governor of that board, he anticipated that he would barely be granted a hearing, but he was surprised to note the extreme alacrity with which that official acted when the matter was introduced to him. Mr. Cushing declared to him that he could not expect the Federal Reserve Board to do anything in regard to the confis-

cation of coal by the railroads, despite the fact that they had not paid for the coal that they had confiscated. He could not give him any relief in regard to the coal that had been diverted and had not been paid for, because these were matters between the coal companies and the railroads and between the coal companies and the

consumers. He could, however, take action to relieve the owners of coal from the great difficulties they were in by reason of the fact that the railroads had held coal on the tracks and so had tied up about \$30,000,000 of the coal companies' money.

Mr. Harding called upon the banks to be extremely careful not to call any coal man's loan, in view of the

fact that the situation of the coal men was extremely precarious, owing to the action of the Government in confiscating and diverting coal. He extended the rights of the banks to loan 25 per cent instead of 10 per cent of their reserves to coal companies, and thus further relieved the necessities which the occasion had created.

He said that from \$40,000,000 to \$50,000,000 was paid within three days to the coal companies, largely by reason of action that was taken by Mr. Harding. He alleged that there were two ways of overthrowing the Lever Act; one was by showing that it was unconstitutional, and the other was by obtaining legislation which would abrogate the Lever Act. The American Wholesale Coal Trade Association was endeavoring to do both.

First, with reference to the constitutional enactment of the Lever Act: The legislation was passed before the armistice, when the nation was engaged in war. The need for it passed with the signing of the armistice. Mr. Cushing said that the validity of the act terminated with the need for its enforcement. But even supposing that the state of war or peace did not bear in any way upon the question, it still remained true that the act called for reasonable prices. He declared that instead of it costing 15c. to market a ton of coal, the amount allowed, the expense involved amounted to between 18½c. and 20c., and this did not include any buying cost. Consequently the regulations of the Fuel Administration were really in violation of the Lever Act.

In reference to the political method of obtaining relief, he stated that a bill to repeal the Lever Act had been introduced by Representative U. Q. Tilson on behalf of the consumers of coal who found that the provisions of the law hindered rather than helped them. This bill, the Representative thought, would do much to wipe out the injustices from which the pur-

Wholesalers, says Gibbs L. Baker, can sell safely for cost plus a profit without violating the Lever Act. Government had no right to refix old prices without inquiry. Coal is not on all fours with spiritous liquors. George H. Cushing states that the purchaser does not break the law when he pays more than Government prices.

chaser of coal suffered as a result of the arbitrary powers which the President possesses, or believes himself to possess. The bill had been referred to the proper committee and he expected that a similar bill would be introduced into the Senate.

Gibbs L. Baker, who is the attorney for the American Wholesale Coal Trade Association, in his remarks which followed declared that the Lever Law was unconstitutional, and that in any event its validity was largely destroyed by the fact that the prices set upon coal on Oct. 30 were fixed without any inquiry as to any changes in costs of materials or efficiency of labor, and, therefore, without due knowledge of the facts upon which a price could be based. It was not in accordance with the law that the Fuel Administration should place a price without due inquiry and then resign, leaving no opportunity to protest and no provision for investigation. He quoted in support of his viewpoint the opinion which former President William Howard Taft prepared for the Smokeless Coal Operators' Association.

PROHIBITION NO PRECEDENT FOR COAL CONTROL

It is true, he said, that in the matter of spirituous liquors Justice Brandeis had declared that the President was still in possession of his war powers, regardless of the signing of the armistice, but alcoholic liquors have always been regarded as subject to police powers of governing bodies, and the right to buy and sell spirituous liquors has never been regarded as a property right but as one which is revocable at will on the part of duly constituted authorities. He declared that the members of the American Wholesale Coal Trade Association would be perfectly justified, legally and morally, in selling coal at the price it stood to them, plus a reasonable profit, and he advised them so to do. He believed that no court would hold them liable for such action.

Mr. Baker said it might be possible that the present control of the situation would cease to exist at midnight on April 30 if the railroads had by that time signed contracts for the next year's supply of fuel, otherwise it might again be extended by executive order.

Mr. Cushing in his further remarks stated that the American Wholesale Coal Trade Association would stand back of any member who took action on this account. He was not in favor of giving notice to the Attorney General that such action would be taken, because that would be tantamount to admitting that some might think that action of this kind was illegal.

ONE MAY SAFELY BUY COAL AT PRICE OFFERED

Mr. Cushing remarked that there is nothing to prevent any man buying coal at any price at which he can secure it. There is nothing in the Lever Act to require a man to pay only the Government price. If the operator believes that he is justified in selling his coal above the price set by the Government, or is willing to take his risks with the Lever Act, that is his business and there is nothing to prevent a wholesaler from buying coal at the seller's price, for there is no fine or threat of imprisonment attached to such act. This is true whether the Lever Act is in force or invalid.

Charles S. Allen, secretary of the Wholesale Coal Trade Association of New York, who recently returned from several days' stay in Washington, told the members of the trade that the coal men had the support of United States Senators Calder and Wadsworth of New

York State in their fight to have the law repealed and that he had spoken to several Congressmen, some of them from the Southern States, who also had expressed their approval of the efforts being made by the industry. He said that the support of many civic and other organizations had been sought to aid in the fight and that so far such support had been promised by more than 200 bodies located in various sections of the country. He also said he was in receipt of telephone messages from nearby Boards of Trade promising support and then he read extracts from several letters he had received in reply to a letter sent out by the local association asking help.

Mr. Allen said other means of aiding the fight were in contemplation and that the trade would be advised of them shortly.

A letter had been sent broadcast by the association, over the signatures of President Andrade and Secretary Allen asking the recipients that if they favor a discontinuance of governmental control of fuel, to write their Senators and Congressmen to vote for the repeal of the Lever Law. The letter reads:

"The war has ended and the emergency legislation growing out of the war also should end. Our citizens have submitted patriotically to the regulations of the Fuel Administration and lately to the Central Coal Committee, which is a branch of the Railroad Administration.

EXCESSIVE CONTROL MAKES PRODUCT SHORT

"Government control of the railroads is a demonstrated failure; and with equal certainty, government control of coal is a demonstrated failure. It is the direct cause of the present shortage and congestion in the handling and transport of coal. There is plenty of coal-mining facilities and labor but the administrative red tape now in vogue will not let the coal reach the consumer.

"The business of the coal trade is to supply the country adequately with coal. If left to itself, the coal trade will do this, as it did before the war. If you favor a discontinuance of governmental control of fuel, ask your Senators and Congressmen to repeal the Lever Law, and write us when you have done so."

The meeting ended without any action being taken; in fact no action was intended. Under date of March 18 a letter was sent out disclaiming any purpose on the part of the officials of the New York Wholesale Coal Association to advise the members as to the course they should take as regards the Lever Law and stating that they personally found themselves in disagreement with Mr. Cushing on many points.

Duty Concerning Highly Charged Electric Wires.—

A coal mining company may be held responsible for death of a miner resulting from negligence of the company in permitting a cable heavily charged with electricity to become and remain uninsulated at a point exposing employees to danger.

A miner is not to be charged with contributory negligence for failure to disconnect an electric wire before working near it in the absence of a rule or prevailing custom requiring him to do so, unless he appreciates or should appreciate the danger under the circumstances of the particular case. (*Kentucky Court of Appeals, Kitchen vs. Hillside Coal Co., 194 Southwestern Reporter, 791.*)

Termination of Federal Control of Coal and Coke Industry Sought

Senator Frelinghuysen Introduces in Senate Bills Providing Seasonal Transportation Rates and Appointment of Commissioner with Advisory Powers—Confiscation of Coal by Railroads Prohibited

TERMINATION of the Federal control of the coal and coke industry, appointment of a Federal Coal Commissioner, and the designation of reasonable rates for the transportation of coal are being sought by Senator Frelinghuysen of New Jersey. Bills looking to the above ends, representing the conclusions of the subcommittee of the Committee on Interstate Commerce, which has conducted an extended inquiry as to the coal situation, have been introduced by Senator Frelinghuysen. In offering these bills to the Senate Mr. Frelinghuysen pointed out many of the conclusions of his committee.

The proposal as to the reasonable freight rate is that it be made compulsory for railroads to handle coal from April 1 to Aug. 31 in each year at 15 per cent less than the regular rate and that during the remainder of the year 15 per cent be added to the rate charged for the movement of coal.

The bill terminating Federal control of the coal industry also amends the act to regulate commerce so as to expressly prohibit any railroad to confiscate or divert any coal which may be in its possession solely for the purpose of transportation and which the owner has not voluntarily transferred to the railroad. The bill providing for the appointment of a Federal Coal Commissioner gives that official only advisory powers. Senator Frelinghuysen takes the stand that the Government has not taken proper interest in the coal industry and that no agency of the Government has been authorized to study and keep track of its progress.

The bill provides that the commissioner shall compile statistics and inform himself as to prices and cost and form a clearing house for the coal industry. The salary of the commissioner is fixed at \$10,000. The bill also provides a \$5,000 salary for a secretary to the commissioner. The commissioner is given ample powers to demand information, facts, and figures from all those concerned in the coal industry. Among the provisions of the bill are the following sections:

"Sec. 7. That the commissioner shall investigate, from time to time, the organization, management, and practices of dealers and operators, costs and profits in connection with the mining, sale, and distribution of coal, the terms contained in leases of coal mines, the prices demanded or received for coal, the distribution, storage, and sale of coal, and the methods and processes employed therein, the consumption of coal, and the transportation of coal in commerce, including the distribution of coal cars.

"Sec. 8. That the commissioner shall investigate, from time to time, the wages, working conditions, terms of employment, and the living expenses of miners and other workmen employed in mines from which coal is transported in commerce.

"Sec. 9. That the commissioner shall investigate,

from time to time, methods and processes for the storage of coal, and conduct such experiments and researches as he may find advisable to determine the most efficient means for such storage.

"Sec. 10. That the commissioner shall file, analyze, and compile all data and information obtained under sections 7, 8, and 9, and shall keep such data and information revised currently and available for immediate reference. He shall publish from time to time, in such form as he deems proper, such portions of the data and information obtained thereunder, except trade secrets or names of customers, as he may deem advisable in the public interest.

Sec. 11. That the commissioner shall, on request, and to the extent that he deems proper in the public interest, place at the disposal of any private or public board, commission, or other group engaged in the arbitration, conciliation, or settlement of any labor dispute arising in any mine from which coal is shipped in commerce, all data and information in the files of his office relating to the matter in controversy. The commissioner shall co-operate with the Interstate Commerce Commission in promoting the proper distribution and most efficient use of coal cars in commerce. He shall also co-operate with dealers, consumers, and others to encourage the construction of facilities for the storage of coal.

Sec. 12. That the commissioner shall investigate the desirability and practicability of prescribing statutory standards for various kinds and grades of coal, and shall submit a report thereon to Congress before April 1, 1921, accompanied by such recommendations as he may deem proper.

Sec. 13. That the commissioner shall investigate the desirability and practicability of a statutory zoning system defining the distance from the mine within which coal therefrom may be transported in commerce, and shall submit a report thereon to Congress before April 1, 1921, accompanied by such recommendations as he may deem proper."

Fear That Operators Will Be Jailed If They Meet Miners in Collective Bargain

MUCH indignation is felt by the Pittsburgh coal operators at the decision in Washington that the findings of the Bituminous Coal Commission are to be regarded merely as a report and not as an award, the whole question to be threshed out in a conference between the mine workers and operators. With 125 men under indictment for just such a conference the operators feel little inclined to meet in another such session, even at the pleasure of the Washington administration, fearing that what they are begged to do today they may be jailed for doing tomorrow if fickle Washington does not happen

to register its approval of the terms on which agreement is reached.

What did the conference do before but try to provide for just such a bargain as the majority of the Bituminous Coal Commission has recently awarded, or rather, as it seems, has merely suggested? Yet that provision, or suggestion—whichever it may be—of the majority is less than would satisfy the minority member of the commission, John P. White. It is said that the present indictment is being brought because of the wage discussion in the past conference. Whether that is so remains to be seen when the indictment is a matter of public knowledge.

But if it is indictable to try to make an agreement in accord with that advised by a majority on a Government commission and to raise wages 25 per cent, how much more indictable it would be to put oneself in an agreement with the minority member of that commission and raise wages 35 per cent! Consequently, when a meeting is held the operators must concede more than 25 per cent and look forward to incarceration or hold to 25 per cent and fail to make any headway.

They prefer to refuse to put their heads into the noose until they are assured by a lifting of the indictment that a conference will not be held to be in the nature of a conspiracy. With a few exceptions the names of the indicted are not known, but it is surmised that the list includes many prominent coal operators and in particular all the members of the scale committee. The operators would prefer to wait and let the mine workers get into a more amenable state of mind such as would make it possible to obtain from them an agreement to accept the rate of pay proposed by the majority of the Bituminous Coal Commission. It is believed that the mine workers have no disposition to go the length of striking on April 1, their present declarations being merely bluster.

Several Operators Arrested in Indianapolis for Conspiracy

Violation of the Lever Act Charged—Allegation Made That Indictment Is Brought on Ground That Joint Wage Conferences Are Illegal

AT LAST arrests have been made in connection with the inquiry of the Federal Grand Jury at Indianapolis into the alleged conspiracy to enhance the price of coal. Those arrested on March 20 were E. D. Logsdon, George A. Van Dyke, B. E. Neal and W. B. Tobin, all of Indianapolis, Ind., and William Zeller of Brazil in the same state. Mr. Logsdon and Mr. Zeller surrendered to the officers, while the others were served with capiases. It appears that Carl A. Fletcher, also of Indianapolis, surrendered to the U. S. Marshal on March 19. Each of the operators gave a bond for \$10,000 and was released till May 4 pending arraignment on that date.

At the marshal's office the statement was made that capiases for the arrest of 51 Indiana men had been placed in the hands of the officers and that it was the intention to serve them as soon as possible. The capiases to be served on men in Illinois, Ohio and western Pennsylvania who are involved in the charges will be mailed to those States for service locally.

E. D. Logsdon, after his arrest, prophesied that as a result of the prosecution there would be a tie-up in the bituminous coal industry after April 1. In his statement he asserts that, according to information that the operators have received, the Government is making its prosecution on the ground that joint wage conferences are and have been illegal. This theory of the illegality of joint wage agreements is said to be the basis for a part, at least, of the charges against the coal operators and mine workers.

If the Government questions whether such conferences and pacts are legal and tries to convict the operators and mine workers for taking part in them, the former, at least, will be indisposed to try to enter into the conferences or sign the agreement, according to Mr. Logsdon. He declares that the Government is inconsistent, for President Wilson as late as March 19 urged that the operators and mine workers get together again and make a collective bargain, thus giving Government sanction to just that practice which the Government by its action appears to be trying to condemn in the courts.

The Federal authorities, it must be conceded, do not admit that the prosecution is based on any such ground and they declare that they will not divulge the details till all of the men accused have been arrested.

On March 22 the list of the indicted was increased by 20 more names: J. S. Riddle and Harold Henderson, attorneys for the United Mine Workers of America; Ed Stewart and William Mitch, president and vice-president of the Indiana or No. 11 District of the same organization; John Heslar, Robert Perry, John Little, F. McQuaid and Harry Lents, members of the Executive Board of District 11, and Will J. Freeman, Homer Talley, former president of the Indiana Bituminous Coal Operators' Association; George Watham, coal operator; M. L. Gould, J. C. Kolsem, Phil H. Penna, secretary of the Indiana Bituminous Coal Operators' Association; Hugh Shirkie, A. M. Ogle, David Ingle, Charles Fettinger and U. G. Hall.

Jabez Wooley, an Evansville coal operator, was arrested at that city at about the same time. As in the other cases the bond was set at \$10,000 and was furnished in every instance. By noon March 23, the number under arrest had reached thirty-one, mostly of Terre Haute and Evansville.

Will Hold Over Convention Till Scale Committee of Mine Workers Has Met

Pending a final decision from the Bituminous Coal Commission, the annual convention of the miners of the Fifth Sub-District of Ohio will not be held. Tuesday, March 9, was the date originally set for the convention, but when it was apparent that the report of the coal commission would not be available by the time set for the convention, the convention was postponed, it evidently being the intention of the miners at their convention to pass upon the decision of the commission and to indicate whether its decision was satisfactory or not. President Ray of the sub-district has indicated that the sub-district convention will not be held until after the General Scale Committee of the mine workers meets at Washington.

All-Year-Round Work Demanded by Anthracite Miners

Steady Employment as Well as 60 Per Cent Wage Increase Sought in Wage Conference

AT THE conference of representatives of anthracite miners with a sub-committee of the operators at the Union League, the miners demanded all-year-round work as one of the conditions of the new wage agreement the conference seeks to reach. No decision had been reached when the conference adjourned.

An increase of 60 per cent in pay and work throughout the year were declared by the miners to be the least concessions with which they would be content. The operators insisted that present conditions in the anthracite fields offer an opportunity for steady work, but the miners contended such conditions are only temporary, due to effects of the war.

Family budgets showing increased costs of living were presented by the miners in support of their demand for more pay. Philip Murray, international vice-president of the United Mine Workers, stated that the work of the conference was proceeding satisfactorily. He said the operators had offered no counter proposals.

The existing wage agreement expires April 1, but it is not anticipated there will be a strike called on that date, even if a new one has not been arrived at. The miners take the position, however, that any wage increase decided on after April 1 be made retroactive. To this the operators take exception, pointing out that they cannot make retroactive any increase in the price of coal made necessary by higher wages.

Anthracite Miners Quote Living Costs To Justify Wage Increase

Operators Say That Advances Granted Since 1915 Have More Than Kept Pace With Prices

THE second week of the Anthracite Wage Conference between the sub-committee of mine workers and operators going on at the Union League Club, New York City, was devoted almost entirely to a discussion of statistics dealing with the cost of living and other economic conditions.

International President John L. Lewis was absent in Washington all week and his place at the conferences was taken by Philip Murray, vice-president of the International Union. The sessions last week began on Tuesday and continued over Saturday, instead of adjourning on Friday, so that the members could return to their homes over Sunday.

At the session on March 16 the earnings of the miners and the demand for a 60 per cent wage increase were discussed. The operators, it was learned, made known their objections to wage increases at this time, declaring that the advances granted the workers since 1915 have more than kept pace with the high cost of living.

When the session finished on March 17 a statement was issued saying that the sub-committee had discussed the opportunities of anthracite mine workers for employment, their earning capacity and the increase in the cost of living.

As at the previous day's conference a mass of statistics was presented by both operators and miners, and it is said that the operators produced reports showing that the workers have been making a "living wage."

The longest statement issued during the present conferences was given out at the close of the session of March 18. It read:

"The production of coal under the present agreement both as to the total amount produced and the per capita production of the miners was taken up at today's meeting. Various arguments were advanced by both parties as to the bearing of the figures shown upon the demands of the mine workers. The representatives of the operators contended that the anthracite industry offers an opportunity for steady employment to the workers, while the miners' representatives argued that the present steady employment in the anthracite regions is largely due to the abnormal conditions arising out of the war.

"The mine workers presented figures showing increases in rent, coal and clothing from 1914 to 1920, also compilations of increases in the cost of living in the anthracite regions and compiled from family budgets secured from anthracite mine workers and their families. Both miners and operators have at their command large statistical data to fortify their debate."

EFFORT BEING MADE TO PREVENT A STRIKE

The session on March 19 was largely devoted to the presentation of additional data by the miners in support of their claims. During the week there were rumors that the conference was waiting for some word from Washington regarding the bituminous wage controversy. It is not expected that any definite action can be taken on any demand until the soft-coal situation is settled.

Every effort is being made to prevent a suspension of work by the mine workers. With this end in view it is said that the operators have asked the miners to continue to work after April 1 if an agreement cannot be reached previous to that time. In reply to this request, it is said, the miners stated that this might be possible, provided that whatever agreement might be reached would be made retroactive from April 1. It is believed the miners will hold out for this provision.

The scale committee of the union, appointed at the tri-district convention held in Wilkes-Barre, considered the request of the operators at a three-hour session on March 20 at the Continental Hotel. Further consideration of the request took place on March 23.

The action of the scale committee in postponing definite action on March 20 was later reported to the sub-committee at the Union League Club. After a brief session it was stated that the sub-committee had continued the consideration of the mass of figures presented by the miners covering the increase in the cost of living and its relation to the request of the miners for an increase in wages. The miners argued that the figures justified their claims for higher wages. Copies of all of the data submitted were read into the record and will be considered by the operators.

Philip Murray, international vice-president, who is attending the sessions of the sub-committee during the absence of President Lewis, has said that every effort will be made to reach an agreement before the expiration of the one now in force. "We have a contract to

make and we are going to make it before the present agreement expires if it is possible," he has said.

It is believed that there would be quicker action by the sub-committee if the bituminous wage controversy was settled. President Lewis is now in Washington working on this situation. Notwithstanding all the time devoted to a discussion of the demands, it is said the miners are determined to make the strongest kind of a fight for the recognition of the union, which has always been refused by the operators.

The sub-committee devoted its session on Monday, March 22, to a consideration of the earnings of the mine workers. Figures were presented by the representatives of the miners showing the full time earnings of the various classes of labor in and about the mines during the past four years.

The sub-committee did not resume its conferences until the afternoon and after a two-hour session adjourned to the next day. It was thought likely that the Scale Committee of the miners would on Monday give further consideration to the proposal of the operators that the men remain at work after April 1 in the event that a new wage agreement is not agreed upon, but it was said at the Continental Hotel that no session was held and that further discussion of the proposal would not take place until the morning of Tuesday, March 23.

This session of the Scale Committee was considered the most important yet held by that body since the beginning of the present negotiations. It was understood that the officers of the union would advise the men to move slowly before framing their reply to the operators' proposal.

Seasonal Freight Rate Would Obviate Car Shortage

Senator Frelinghuysen's Bill, by Promoting Regularity of Movement, Would Eliminate Fall and Winter Rush

PROBLEMS that have long vexed the coal industry are promised a solution by the seasonal freight rate bill introduced by Senator Frelinghuysen. The measure reflects the ideas of Commissioner Clark of the Interstate Commerce Commission, Mr. Frelinghuysen said. Some of the beneficial results expected from the bill were summed up by the Senator from New Jersey as follows:

It would stabilize the price of coal. The capacity output of all the coal mines in the United States, assuming fairly constant operation, would far exceed the present consumption. The output of all these mines working, as at present, only intermittently during the spring and summer months, and working to capacity during the fall and winter months, is barely sufficient to supply the current needs and the greatly increased cold-weather demand for coal.

During the winter the demand so nearly equals the currently available supply that scarcity prices prevail. In addition to this, the actual cost of production per ton is unduly enhanced because the operator must, during the time his mine is closed down or working intermittently, keep together his organization and expend money for the upkeep and maintenance of the property, all of which must be added to the price of coal which he mines and sells during the rush season.

If the demand for coal were reasonably constant throughout the year, many of these costs based on holding plant, capital, and personnel idle for a large portion of the time would disappear, and the price of coal would more nearly represent only current costs of production plus a reasonable profit, leaving no opportunity for charging scarcity prices during the months when the greatest amount of coal is consumed.

Such legislation would obviate very largely the pressing necessity for more coal cars. The present supply of coal cars, while totally insufficient to handle the fall and winter rush under existing conditions, would be fairly adequate to carry all the coal desired by consumers if this equipment could be kept moving with greater regularity throughout the year, as would be the case if the advantage of lower summer and spring freight rates could be held out to induce consumers to receive coal shipments in advance of their winter needs. Under the present system thousands of coal cars lie idle during the spring and summer, while the whole available supply of coal cars is entirely insufficient to handle the fall and winter emergency.

Such legislation would remedy the present inadequacy of terminal facilities. The large amount of coal which must now be transported within a comparatively short time in each year tends to glut already overcrowded terminals. The increasing inability of existing terminal facilities to handle extraordinary seasonal demands without entailing serious delays and disproportionate terminal costs is one of the most glaring weaknesses in the present American railroad transportation system.

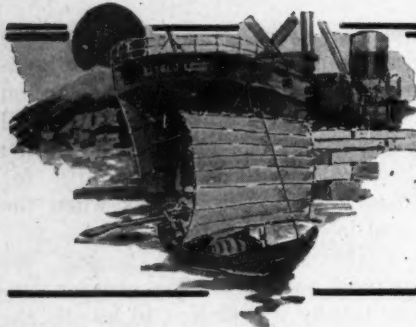
All Mines To Share Orders Equally

Seek Also To Have Insurgent Strikers of Belleville, Ill., Reinstated

A movement for the equal distribution of orders among all the soft-coal mines of the United States was inaugurated at a sub-district meeting of the United Mine Workers a few days ago in Belleville, Ill. James Mason, secretary-treasurer of the Belleville sub-district, was instructed to ask John P. White, miners' representative on the National Coal Commission, to induce the commission to incorporate in its decision on the miners' wage a provision that coal orders be distributed equally among the mines, to the end that a more even distribution of employment may be secured.

It was stated at the meeting that some mines work steadily while others operate only part time because the railroads concentrate their purchasing at a few large mines. It also was charged that these mines were favored by a larger delivery of coal cars. The allegation also was made that the southern Illinois miners were being deprived of employment because the railroads were purchasing largely from the non-union mines of Kentucky.

Reinstatement of Belleville miners who were discharged for activity in the insurgent strike at the Southern Coal Co.'s mines last summer, or an order to strike at those mines until the discharged men are reinstated, was demanded in a resolution adopted at a meeting of the Belleville sub-district of the Illinois United Mine Workers.



FOREIGN MARKETS AND EXPORT NEWS



Movement to Tide During January Largest in Five Years

Bituminous coal dumped at North Atlantic ports totalled 3,185,000 net tons during January, 1920, according to the U. S. Geological Survey. This was a large increase over November and December, when many mines normally shipping to tide were closed by the strike. In fact, the movement was the largest attained in any January during the last five years. The total tonnage dumped during the first ten months of the present coal year was 32,793,000 net tons. Compared with the preceding coal year (1918-1919) this was a decrease of 4,471,000 tons, or 12 per cent.

BITUMINOUS COAL SHIPPED TO TIDEWATER (Net Tons)

	Coal Year, 1919-20	Coal Year, 1918-19
November.....	2,235,000	3,270,000
December.....	2,036,000	3,206,000
January.....	3,185,000	2,954,000
Coal year to Jan. 31.....	32,793,000	37,264,000

Coastwise shipments to New England during January amounted to 804,000 net tons. This was the largest tonnage reported since last September, and except for that month and for August, the largest since December, 1918. In comparison with January of last year it represented an increase of 83,000 tons, or 11.5 per cent. Cumulative tidewater shipments to New England from the beginning of the present coal year now amount to 7,424,000 tons, as compared with 13,329,000 tons during the corresponding period of the year 1918-19.

BITUMINOUS COAL SHIPPED TO NEW ENGLAND VIA TIDEWATER (Net Tons)

	Coal Year, 1919-20	Coal Year, 1918-19
November.....	703,000	1,162,000
December.....	674,000	876,000
January.....	804,000	721,000
Coal year to Jan. 31.....	7,424,000	13,329,000

Overseas exports from North Atlantic ports during the month were 896,084 net tons, which may be quite roughly distributed as follows:

New York.....	103,000
Philadelphia.....	174,000
Baltimore.....	591,000
Hampton Roads.....	29,000
Charleston.....	897,000

As compared with the 230,325 and 182,064 tons exported from these ports in November and December, respectively, this was a marked increase. It was, however, less than half the tonnage sent overseas in October, before the strike necessitated restricting exports.

Danzig Is Short of Housing Facilities and of Fuel

As in most other cities, there has been for some time a marked shortage of housing facilities at Danzig, which has been aggravated by the fact that many quarters suitable for dwellings have been rented as offices by new firms coming to the city, says *Commerce Reports*.

The authorities have endeavored to relieve the situation by converting barracks, officers' clubs and other buildings into dwelling houses. Two official boards, the Wohnungsamt (housing office) and the Mietlingsamt (office for settlement of ques-

tions pertaining to rentals), are charged with finding dwellings for the population and settling disputes and adjusting rentals between landlords and tenants. The powers of both boards are extensive.

The fuel shortage has constituted another serious problem for the Danzig authorities. In January, 1919, the tariffs for gas and electricity, which are both furnished by municipal plants, had to be materially increased. Fares collected by the company operating the street railway lines were raised in February. The services of the company had to be restricted in the course of the year.

As a further means of saving fuel restaurants and moving-picture theatres were ordered closed at 9 p. m., although they are now permitted to remain open until 11, provided they have their own lighting, for which benzol is widely used. With few exceptions, stores have to be closed at 4 o'clock.

Heavy Export Coal Traffic at Charleston, W. Va.

The *Charleston Gazette* states that coal that is moving through Charleston is probably better known to people in towns along the Southern Ry. than to people of Charleston. For some time long coal trains have been hauled into the Charleston yards, just above the city boundary, and many more are on the schedules.

A Spartanburg man who had observed these long coal trains cross Main street in his town, said that it looked as if all the coal in the world was moving down to the seaboard. He said that people in that section were wondering what became of the coal after it reached Charleston.

For months, the movement of export coal through Charleston has been steadily growing, the several companies expanding their business. A considerable quantity has been sold to the Paris-Lyon-Mediterranean Railroad in France, this being transported in the railroad's own steamships. Other vessels have also carried coal from Charleston to European ports. Several cargoes have been taken to Boston.

Coupled with a heavy freight business generally, this movement of coal has added considerably to the burdens of the office of the division superintendent, Clifton P. King, but the matter of arrangements for storage tracks has been handled without a snarl. Mr. King is widely known as an expert in solving problems growing out of heavy traffic and Charleston has had its freight moved over the Southern Ry. as promptly as possible in all the circumstances.

While it has been reported that the Southern Ry. has been considering the construction of another unit at its coal terminal on the Cooper River, near the Country Club, nothing official has been announced and it is said that nothing will be said about the matter for some time. When the terminal was built, it was designed so that additional units could be installed if the expansion of the business warranted.

Czech Industries Retarded by Coal Shortage

A partial shutdown of Czecho-Slovakia's industries is threatened because of the scarcity of coal. The demand for Czech products is so great that the coal requirements of industries exceed pre-war requirements. The situation is complicated by falling off in supply due to the difficulties of working the mines and the treaty with Austria requiring them to give up a large part of their supply.

Anthracite coal production last year was 10,000,000 tons, which is nearly 4,000,000 tons below the normal. The output of

bituminous in the same period was 16,500,000 tons as compared with 23,000,000 tons before the war. Of this supply 1,000,000 tons of anthracite and 3,500,000 tons of bituminous were surrendered to Austria, leaving only 56 per cent of the former and 67 per cent of the latter coal available for domestic consumption. The Government has carefully apportioned the supply to the various needs of the country.

Coal Output in Nova Scotia Is Not Up to Average

The production of coal in Nova Scotia for the last three months of 1919, Consul Charles M. Freeman, Halifax, Nova Scotia, Canada, states, was hardly up to the other months of the year. The output for the period was over 1,000,000 tons, an average of about 11,000 tons daily. There is practically no reserve stock on hand; all the surplus production from the coal fields of Cape Breton has been taken by steamships calling for bunker, except a quantity sold to the Netherlands Government.

No new mines have been developed, although the Dominion Coal Co. has in view the opening of new collieries during the coming year. Labor conditions have curtailed production.

Price of British Bunker Coal Continues To Be High

The following cablegram has been received from Consul General Robert P. Skinner, London, regarding the price of bunker coal and the movement to advance the outward freight rates:

Bunker coal at the port of London is selling at 155s. per ton. Coal for British industrial works is selling at the controlled price of 40s. per ton, and equivalent quality bunker coal at 140s. per ton. Since last May the price of bunkers has risen by 100s. per ton, while ordinary cargo freight rates are practically unchanged. There is a movement in progress to advance outward freight rates from the United Kingdom by 50 per cent if bunker prices cannot be lowered.

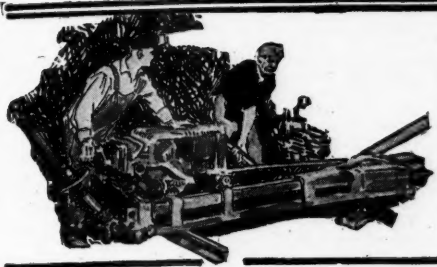
Coal Conservation Regulations in Force in Denmark

So serious has the coal situation in Denmark become that the government has found it necessary to formulate stringent regulations of the hours of business. Even the temperature that may be maintained in houses is prescribed. For instance, no private house is permitted a temperature in excess of 53 deg. F.

Restaurants must close at 10:30 each night, street car service ceases at midnight. All theatres and moving picture shows open at 6:30 and all stores and offices must close on four days of each week at 5 o'clock. Copenhagen, being far north, has very short days during the winter months. The population must get up in the dark, even if they rise at 10, and dusk begins to gather at 3 in the afternoon. Consequently laws governing early closing make life very dreary.

South Wales Collieries Agree to Fixed Maximum Prices

The South Wales collieries have agreed to a fixed price for bunkers—large, £4, small £3 per ton, to be effective April 1. The new prices will apply on all shipping, home and foreign. It is expected that other ports will meet this cut.



COAL AND COKE NEWS



Scranton, Pa.

Spectacular Mine-Cave Developments —Engineers Investigate Oxford Working—Mayor Connell and Police Assist

West Scranton was a storm center during the second week of March in regard to the mine-cave agitation which has been such a prominent issue in Scranton and vicinity for the past few months. The city council of Scranton recently authorized the expenditure of \$10,000, to investigate mining conditions under the municipality. Accordingly Mayor A. T. Connell appointed five engineers to inspect the Oxford mine of the Peoples Coal Co. James Smith, city mine-cave engineer, is chairman of the board of engineers; and Arthur W. Long, engineer of the Scranton Mine-Cave Commission, is to act as advisory head to the engineers and also to give assistance in the investigations of mine workings.

The area underlaid by the workings of the Oxford mine has been the scene of great disturbance for the past few months. The surface and the buildings on it have been seriously damaged; the gas mains have been broken, with the result that explosions occurring not only did considerable damage but further incensed those living in the vicinity. The Surface Protective Association of Scranton has been especially active in efforts to obtain relief from such conditions. In addition certain apparently incriminating information reached the city authorities and doubtless influenced Mayor Connell to order an examination of this particular mine. The mayor stated that he wanted an exhaustive, unbiased, unprejudiced and uninfluenced inspection made; he believes that when the inspection is completed, that the public will better know what steps to take to prevent further damage to surface and property and possibly to life and limb.

In pursuance of this plan the board of engineers entered the Oxford mine to verify certain information and to obtain a definite idea as to underground conditions in the West Scranton section. Here they met with forcible resistance, especially when they attempted to dig through a wall in the mine, behind which it was suspected mining operations were being carried on, despite an injunction of court. This section is underneath or near North Main Avenue. Mayor Connell himself was refused admittance to the Oxford mine on the first day of examination and a number of sensational incidents marked the attempts of the engineers to gather information in the workings.

Effect Entrance to Mine With Armed Force

On the following day Mayor Connell made another effort to enter the mine in company with 45 armed patrolmen. Not often in the history of the city has there been as much excitement around a mining operation, as when the mayor and patrolmen fought with officials and employees of the Peoples Coal Co. around the entrance to the mine. During the days following, sensational scenes attended the efforts of the engineers to gain admittance to the Oxford mines and to certain parts of the workings. Entrance was effected through old openings and by means of connections with an adjoining mine of the Delaware, Lackawanna & Western company.

Apparently the engineers have unearthed evidence which may have an important bearing on the situation affecting the West Scranton section. No official statement has been made by those having the inspection in hand, and several weeks may elapse before the examination is completed. Many physical difficulties are presented to those inspecting the workings and reports state that strangely enough the Peoples Coal Co. is placing many obstacles in the way of those examining the Oxford mine. Mayor Connell has issued a proclamation covering the situation in which he orders the Oxford

mine closed and that no further mining of coal will be allowed; also that no persons will be allowed to enter the mine except fire bosses, pump runners and those of like occupation, whose presence is necessary to the safety of the mine, until examination has been completed.

The city of Scranton authorizes and will enforce this order. The matter of surface protection is to be brought to a head. It is claimed that the Davis law, enacted in 1913, has been violated. The matter will undoubtedly be carried to the courts, upon whom those directly interested seem to place reliance for a final decision.

Charleston, W. Va.

About All Chesapeake & Ohio Coal Cars Missing—Mine Supply Serious Problem—Confiscation of Kanawha Coal—New River Exports at Low Ebb

Time was being marked by many mines in this section of West Virginia during the second week of March while operations awaited cars which never came. Production was seriously retarded in fact by the inability of railroads to supply cars even approaching mine ratings. This scarcity of cars, therefore, made it impossible to make any gains in the output over previous weeks. In fact production was less than half of what it ought to have been and less than half of what it could have been had the car service been at all satisfactory.

No causes other than a shortage of cars operated to hold back production. Nearly a full production was possible at the beginning of the week, largely through a two-day car supply combined in one; then the output was lowered to 45 per cent and finally down to 35 per cent. During most of the week the supply was just about 45 per cent of requirements.

Months Before Car Shortage is Over

Although the Chesapeake & Ohio R.R. has about 40,000 coal cars, most of such rolling stock is now in use on other roads and some of it in the far West. As a matter of fact fully 35,000 coal cars are missing from the home line with little prospect that they will be returned for several months to come; so that the Chesapeake & Ohio is confronted with quite a serious problem in endeavoring to supply its mines with cars. Of course under such conditions, it is useless to attempt to operate in many instances, and little hope is held out for anything better than a 50 per cent supply for some time to come.

Little progress has been made so far in this part of West Virginia in closing contracts for the new coal year; companies are far behind on contract deliveries for the present year, being not only utterly unable to supply the spot demand but also to furnish the coal which they are under obligations to deliver. It did not require embargoes to prevent coal shipped from reaching its destination. Confiscation accomplished the same purpose, and the widely advertised cessation of confiscation is described by producers as a myth; since coal consigned to tidewater points for export is being gobbled up, even after it is in the pools ready for cargo loading, and it is then handed over to the railroads and to New England utilities. Naturally then export shipments were reduced to the very minimum.

Continued control over the coal industry is not only exasperating coal men in West Virginia, but it is also arousing keen indignation, as operators feel that Government officials are openly discriminating against the industry. With the Government still maintaining its hold on the industry and with everything at sixes and sevens, few contracts are being made under present uncertain conditions.

Heavy Kanawha Production Loss

Less coal was produced in the Kanawha region between March 8 and 13 than during the first six days of the month, and the inability of the mines to secure cars was almost solely responsible for the heavy production loss sustained. At only one time during the week did loadings approach normal and that was on Monday when production was 28,000 tons; Coal River mines on the same day having a production of 15,000 tons. As soon as Monday's cars were loaded out, mines began marking time once again, the supply on Tuesday being only 44 per cent of allotment. There was a slight improvement on Wednesday, but on the day following there was only a 36 per cent supply.

Contrary to general expectations, much Kanawha coal was still being confiscated during the second weekly working period of the month. The mere fact that coal was being shipped under permit to tidewater, did not protect such coal from confiscation even after being dumped into the pools at tide.

New River Output 37 Per Cent

New River mines failed during the second week of the month to regain any of the ground lost in earlier weeks, suffering to an even greater extent than had been the case in the period between March 1 and 6; a scarcity of cars was the chief factor in holding production to a ridiculously low figure. In fact mines were not working more than half time during the week, and the car supply was, during five out of the six days, much under 50 per cent.

Production fluctuated between 35 and 45 per cent of potential capacity. Under the circumstances producers were finding it impossible to keep pace with the demand. Export shipments were at about as low a point as they had been for some time, confiscation of New River coal in transit, as well as at tidewater, having as much to do with that condition of affairs as anything else. It was stated at the end of the week, that smokeless producers would disregard Government prices and charge what was considered a fair market price for smokeless coal. There was nothing to mar the labor situation in the New River field during the second week of the month.

Bluefield, W. Va.

Mines Idle in Southern West Virginia— Virginian Ry. Places Big Car Order —Acute Pocahontas Car Shortage—Tug River Increases Output

The second week of March found the conditions much worse on the Norfolk & Western, from a transportation standpoint, than had been the case during the previous week; while on the other hand, mines on the Virginian had a supply slightly more liberal than during earlier weeks. Idleness was quite general throughout the extreme southern mining fields of the state during the greater part of the week. As a matter of fact the end of the week found the car supply almost at zero. For two days, or during one-third the weekly working period, there was not more than a 20 per cent supply of cars available for most mines on the Norfolk & Western. In the face of such discouraging transportation conditions, optimism had given way to pessimism as a hoped for improvement in the car supply had not materialized. It is extremely doubtful if the average mine in the southern part of the state was able to operate more than three out of the six days, and some of the smaller mines were affected to an even greater extent.

Under such conditions coal costs were mounting quite rapidly, since the overhead expense is going on just the same. Not only was the meager car supply, during

the weekly period ended the thirteenth, embarrassing from a transportation and financial standpoint, but it was breeding much discontent among the miners, and was driving them away in great numbers, owing to the irregularity of work and the small amounts they were able to earn.

Another drawback to satisfactory coal movement was poor motive power, the movement of coal being extremely slow. However it was Government regulation of distribution and of prices, which was also seriously affecting the business of mining during the week ended the thirteenth, since coal was being confiscated in just as large a volume as ever, whether it was for export or not, so that there was virtually no coal at all being exported during this period. As a matter of fact on March 11, at all three tidewater terminals—Sewell's Point, Lambert's Point and Newport News—there was only 16,000 tons of coal available for export loading.

Until the Norfolk & Western succeeds in securing the return of more of its own equipment than it now has on hand, a continuance of the car shortage is expected. As the influenza and other factors which affected labor conditions, during a part of February, have been eradicated, the man power available in southern West Virginia is such as to make a large production possible, although during the first two weeks of March, inability to secure work was causing many miners to seek employment elsewhere.

Winding Gulf Works Three-Quarters Time

Slight gains were made in the output of the mines of the Winding Gulf field, during the week ended March 13, not through any improvement in the Chesapeake & Ohio car supply but largely through a more liberal distribution of cars on the part of the Virginian Ry. The supply of cars from the latter road was such as to enable mines to work about 4 1/2 days during the week. On the other hand mines dependent upon the Chesapeake & Ohio for empties had to content themselves with about a half week's supply.

Operators in the Winding Gulf field have been advised that the Virginian Ry. has placed an order for 1,000 120-ton open-top cars for delivery during the present year. Proposed export shipments from the Winding Gulf field have fared the same as exports from other fields, not being treated as exports at all but as subject to Government interference and confiscation; so that coal from the Winding Gulf region actually exported during the second week of the month was quite small in volume.

Pocahontas Car Supply 50 Per Cent

Pocahontas production continued to suffer in the second week of March as it has since the first of the year, with losses outweighing the output and with a car shortage counting as the most serious source of this loss. As during the few preceding weeks, the acute shortage of cars cost a production of more than 200,000 tons of coal; the supply of empties, taking the week as a whole, not being more than 50 per cent at the most. Hence, on an average, Pocahontas mines were idle about half of the week, and on the twelfth and thirteenth the quota distributed to various mines averaged just about one-fifth of requirements.

There was little sickness among miners but mine workers were becoming restless and were leaving the field because of the frequent idleness at operations. While priority regulations did not affect export shipments, confiscation did, and by the middle of the month export shipments of Pocahontas coal were few and far between.

Although still seriously handicapped by inability to secure cars, mines in the Tug River field were not affected to as great an extent, during the week ended March 13, as other fields in southern West Virginia; therefore the output was increased from about 57,000 to 72,550 net tons, the highest production reached in a period of three months.

With the contract season right upon them, Tug River producers are very much at sea as to next year's contracts, owing to the continuance of Government price control. Indeed, the plight of producers is a serious one and they are confronted with the necessity of either shutting down, or else of paying no attention to Government prices.

In view of the opinion vouchsafed by Ex-President Taft, it is generally believed that many smokeless operators will disregard Government prices, and it is therefore possible that there will be an advance in the price of smokeless coal within the next 30 or 60 days. It is impossible, operators say, to operate mines at the pres-

ent price of coal as fixed by the Government. Owing to adherence to the rule of the American Car Association, that coal cars be returned empty to home lines, a more serious car shortage than now prevails is looked for in the Tug River and adjoining fields.

Huntington, W. Va.

Car Shortage Losses Far Exceed Output—Confiscation of Coal—Double Tracking of Guyan Branch Requested

There was a downward trend to production in the Logan field during the period ended March 13, production reaching little more than 150,000 tons, with car-shortage losses mounting skyward and far exceeding production. As a matter of fact the loss from transportation disabilities was well over 200,000, it being one of the worst weeks in recent months from a production standpoint; despite the fact that the car supply was better and the loadings larger on Monday (the eighth) than at any time in recent weeks, amounting on that day to 50,000 tons.

Less than half that amount of coal, or 22,300 tons, were produced on the ninth, there being a slight increase on the tenth however when the output was 25,700 tons. However on the eleventh, production had dwindled to one-third of normal, being only 19,850 tons. Logan mines wound up the week with an output of only 17,650 tons, weather conditions being highly unsatisfactory and operating to cut down both the production and movement of Logan coal.

Although confiscation of coal was assumed to have ceased with the passing of the railroads back to their former owners nevertheless Logan producers reported quite a large tonnage still being confiscated, part of it at tidewater. However, the volume so confiscated was far less than was the case when the railroads were under Government control.

Tidewater shipments, especially during the latter part of the week, were running unusually heavy, but so far as could be learned only a small proportion of the coal going to tide was being shipped overseas, not only because of export regulations but also because of the confiscation at tidewater. Western markets were drawing heavily on the Logan field for a coal supply, some of the product of the field also being consigned to southeastern markets.

Logan operators were represented by a delegation who attended a conference at New York (on the nineteenth) between directors and officials of the Chesapeake & Ohio and representatives of various Kentucky and West Virginia coal fields, at which time the double tracking of the Guyan Branch of the Chesapeake & Ohio (in addition to the double track already built) was requested, in order to take care of the additional tonnage from the Guyan field.

Fairmont, W. Va.

Meager Car Supply on Baltimore & Ohio—Other Roads Hard Put—The Reason—Late Lake Season Opening Welcome

While the Baltimore & Ohio R.R., operating in northern West Virginia, appeared to have more cars for the mines on its lines than other roads in the state, even the supply on that road during the second week of the month was, most of the time, below 50 per cent; so that it may be imagined how hard put mines on other roads were for open tops. In all fields, Monday brought a large quota of cars. However, that was the only day out of the six, in which there was anything like a full day's work, for by the second day, even on the Baltimore & Ohio, the quota furnished had dropped to less than half; the West Virginia mines on the Monongahela R.R. were forced to be content with a 30 per cent supply. As a matter of fact that road distributed only 75 cars even on Monday.

Production, it is believed, reached the lowest level on the tenth in the Fairmont as well as in other northern West Virginia fields. In the Fairmont field, the Wednesday distribution was less than 500 cars. With no cars available, to speak of, it was not surprising to find 112 mines not in operation. While idleness was not so general Thursday, nearly 90 mines found it

impossible to operate on that day. Other fields in the northern part of the state, as may be surmised, were not doing even as well as the Fairmont field, and consequently idleness was quite general.

One reason for a more plentiful supply on the Baltimore & Ohio was the fact that that road was not releasing as many cars to connections as were other lines. Furthermore in order to secure coal, the railroad had to deliver cars. While the supply was exceedingly poor even on the Baltimore & Ohio, it was somewhat better than had been observed while the road was under Government control, during recent months.

Western shipments were comparatively limited as compared with eastern consignments. Of such coal as was flowing westward, the bulk of it was being consigned to Michigan and Ohio points. Export shipments were extremely meager in volume during the week. A considerable tonnage of the northern West Virginia product was being used by the railroads. In fact, under a sort of quasi-agreement, about 20 per cent of the fuel produced during the second week of the month, was being furnished the Baltimore & Ohio and other railroads.

Lake Season Not to Open for a Month

Little preparation so far has been made by northern West Virginia operators to take care of any Lake business. In the first place it is generally believed that it will be fully 30 days before the Lakes are open to navigation. Although it is believed that little coal remains on hand from last year, and consequently that there will be a pressing demand when the Lake season is opened, yet the demand and the shortage in the East is such, that it will be necessary to equalize the supply and demand before being able to ship coal on a large scale to the Lakes, for next year's reserve stock.

Furthermore northern West Virginia operators rather welcome a late opening of the Lake season, since it is almost impossible to arrive at a proper basis for making contracts under present conditions, and consequently contract-making is far behind that of other years. A year ago producers were eager to find contract customers. Generally speaking, at the present time producers are waiting developments before making contracts.

Norton, Va.

No Let Up in Coal Confiscation—Output 60 Per Cent of Capacity

Despite repeated protests there is no abatement in the confiscation of coal produced at Virginia mines. At least such was the case during the second week of March when fully half the output of the mines was seized by the railroads, not in transit, nor at tidewater but at the mines, with entire disregard of the arrangements between producers and consumers.

This indiscriminate confiscation left very little coal available for commercial purposes, especially when it is taken into consideration that there was a production of only 114,000 tons, or 60 per cent of potential capacity. The other 40 per cent was lost entirely because of the inability of the mines to secure cars.

There was an output of 32,000 tons, in addition to the figures just given, for which there was no cars; but this 32,000 tons was used in making coke. Including the tonnage used in the manufacture of coke there was a total of 145,210 tons produced in the field. Spot coal was not available even in the smallest quantities, owing to the fact that the limited output, less the tonnage confiscated, was not such as to enable producers to meet contract requirements.

Ashland, Ky.

Kentucky Mines Big Capacity Increase—Campaign for Improved Car Service—Ex-President Taft's Recent Opinion

Production was punctured to some extent during the week ended March 13 in the northeast Kentucky field, a ten per cent loss, as compared with the previous week's production, being sustained. In other words the output dropped to 124,940 tons, or 51 per cent of a potential capacity (246,000 tons), with the car shortage responsible for a loss of 116,505 tons, or 47 per cent. In the same period of 1919 the output was 109,027 tons.

The car supply to the mines served by the Chesapeake & Ohio and its branches, during the week, afforded 56 per cent work-

ing time, or a little better than three days; while on the Louisville & Nashville a 46 per cent working time was permitted the mines, or a little better than 2 1/2 days for the week. The production on Monday, March 8, was by far the largest one day's loading in the history of the field and had the car supply continued to the same extent during the week, the district would have loaded well in excess of 200,000 tons.

Large Development in Mine Capacity

A careful survey of the situation in the northeast Kentucky field, during the second week of the month, disclosed an increase of 57 per cent in the potential capacity of the mines since March, 1918. The increase separately by railroads was as follows: Chesapeake & Ohio mines, 53 per cent; Sandy Valley & Elkhorn mines, 22 per cent; Louisville & Nashville mines 38 per cent; Ashland Coal & Iron mines 5 per cent; marked gains were made in the other local districts, especially along the Long Fork, which was not opened for service two years ago. Quite limited improvement in railroad service was made during the period mentioned so that it is easily explained why the railroad service at this time falls far short of the demand placed upon it.

Increased development has also taken place along the other branches of the Chesapeake & Ohio although possibly not relatively so great. Furthermore, considerable contemplated new development has been retarded by the failure of the railroads to take care of their present business. It is safe to assume that had proper encouragement been given to new operations in the way of satisfactory car supply the productive capacity of the northeast field would easily have been doubled in two years. With the new development now under way it is expected that within a year the double mark will have been reached.

Aggressive Campaign for Improved Car Service

Northeast Kentucky operators, in cooperation with those from the other Chesapeake & Ohio districts have started an aggressive campaign for the improved service they feel they are entitled to; it is expected that the entire question will be aired before the Interstate Commerce Commission, if the Chesapeake & Ohio management does not show greater assurance, that they have the matter under consideration; furthermore that they will do everything in their power to improve conditions and at the earliest possible date.

A more liberal treatment of the mine ratings for the ensuing month has been granted by the Chesapeake & Ohio Allotment Commission, so that the new ratings for the northeast Kentucky district show an increase of approximately 10 per cent over the previous ratings. Nevertheless, many of the northeast Kentucky operators are still far from satisfied, and are pressing their claims energetically for additional increases, which they feel they are entitled to.

Former President Taft recently submitted his opinion before the smokeless operators meeting, during the second week of the month, wherein he held that the confiscation of coal by railroads was illegal and the enforcement of price regulations under the Lever Act null and void. In consequence of this many operators in eastern Kentucky contemplate entering the markets with a view to securing the best price offered them for their production; so that it would not be surprising to see quite a general increase in prices within the next two months. The only alternative to price increases, many operators claim, is either a suspension of operations, or bankruptcy.

Birmingham, Ala.

Operators Refuse to Reinstate Miners—Umpire Sustains This Decision—Other Miner's Complaints Dismissed

Alabama coal companies, including the Pratt Consolidated Coal Co., Aetna, Liberty, Sloss-Sheffield Steel & Iron Co., Gulf States Steel Co. and the Corona Coal Co., won the first battle in this state in the complaints of miners who claimed that coal operators refused to reinstate them, in violation of the Garfield agreement, following the coal strike last November.

Judge E. H. Dryer, umpire between the coal operators and the miners in Alabama, ruled that the Garfield agreement did not provide that operators must reinstate men who voluntarily quit their jobs, either during a strike or at any other time, but only

where union affiliation was the cause. The umpire held that the men had voluntarily given up their jobs in the coal strike, and the question of reinstatement was a matter of company policy on the part of the coal corporations.

Frank S. White, Jr., acting counsel for the United Mine Workers, declared himself unfamiliar with the contentions of the miners petitioning reinstatement, as he was substituting for his father, Frank S. White, Sr. who was ill. Following the ruling he announced that as the cases of 104 other miners petitioning reinstatement with nine other coal companies, set for hearing March 19, involved the same principle, that they should be dismissed. It was so ordered by Judge Dryer.

The following statement regarding the contentions of the miners was given out by Judge Dryer:

"Wiley Davis, Walter Chism and Will Chism complain that they are denied reinstatement by the Pratt Consolidated Coal Co. for service as employees at the Gamble mines. As members of the United Mine Workers they obeyed the general strike order, effective Nov. 1, 1919, and voluntarily quit the service of the employer. The strike ended, they claim to be entitled, as of right, to re-enter the service of the company, which refuses to re-employ.

Strike Illegal, Reinstatement Refused

"The umpire concurs in the public declaration made by the President, and in the opinion of United States District Judge Anderson, of Indiana, that the strike was illegal, and the question presented is, whether or not a member of the union who obeyed and participated, may now rightly demand to be placed in his former position without the consent, and against the wishes, of his former employer. The contention, in its essence, is that an employee may leave and return to the service as and when he pleases; and that this right exists even where the abandonment of the service was without just cause.

"Neither in law, nor in morals, may one escape individual responsibility for the consequences of his acts in obeying the orders of a union of which he is a member. What the union does, with his participation, is his act. If he leaves a service under the orders of the union, he leaves of his own volition. Having left, he cannot, as against his employer, claim any privilege or immunity he could not claim if he had not been a union man and had left the service of his own free will and accord. A union man cannot rightfully claim the benefits, and repudiate the burdens and responsibilities, of concerted action.

"No one would contend that a non-union man may leave a service, without good cause, and be entitled, as of right, to reinstatement against the consent of his former employer. A union man occupies no higher station.

Practical, Businesslike Ruling

"The prime object of the Garfield agreement is for increased production of coal. When a strike occurs, in order to continue operations, it is necessary to call in new men, and promote those remaining (who are competent) to places made vacant by those who have walked out. It would be unjust to discharge, or demote these men in order to restore the old men to their former positions whenever they may be pleased to return and demand reinstatement. No business could long survive a practice of that nature; and the true interest of the working man is not advanced by insistence upon it. The agreement, in terms, eleventh section, provides:

"The operator and his superintendent and his mine foreman shall be respected in the management of the mine and the direction of the working force. The authority to hire or discharge shall be vested in the mine superintendent or mine foreman."

"It follows, that these applications for reinstatement should be denied. It is so ordered.

"It being admitted that the several complaints against Sloss-Sheffield Steel & Iron Co., Corona Coal Co., Aetna Coal Co., Liberty Coal Co., Birmingham Trussville Iron Co., Central Coal & Iron Co., Eureka Coal Co., Supreme Mining Co., Red Eagle Coal Co., and Rodney Coal Co. are of like character, and cannot under the ruling be sustained; they are, each, for the same reason, denied and dismissed."

The decision in this test case establishes an important precedent which should be invaluable in future similar disputes. The umpire in the Pennsylvania anthracite field performs a similar service, which dates from the time of appointment of the Conciliation Board.

Vancouver, Wash.

New Coal Field 80 Miles from Portland—Large Deposit of Fine Coal—Good for Coke and Power—Importance of District

Investigations are now under way, according to A. L. Haley, an engineer of Vancouver, Wash., which may result in the development of coal fields, heretofore dormant, within easy access of the Columbia River basin; this field, it is stated, would supply Portland and the ports of the Columbia River, with an unlimited quantity of cheap fuel and place them beyond the necessity of depending upon outside sources for their coal.

"Within the Columbia River basin, about 78 miles from Portland and Vancouver," said Mr. Haley, "there are available large deposits of coal suitable for ship's bunkers and fuel for industries.

"Southwestern Washington, 73 miles from Portland and Vancouver, has been known for a long time to have large areas of bituminous, sub-bituminous and lignite coal. Near Cinnabar, however, an extensive deposit of bituminous and sub-bituminous coal has been exposed; glacial action having eroded the lignite formation from the surface, bringing into view the earlier sandstones, and exposing seams of coal said to be equal to the best discovered anywhere in the West. The surface croppings had been the source of supply for different military posts in western Washington, for many years before the country became settled, and that the properties have been dormant so long a time, is due to the fact that there has been concerted effort on the part of the coal and transportation companies, to keep prices at as high levels as possible by discouraging development of new fields.

"Shipments of this coal sent to Connellsville, Pa., and made into coke, showed that the coke had a hard body, carried a heavy burden and stood fast driving in a blast furnace for the making of iron.

"A number of tests for byproducts made from shipments averaging about 30 per cent volatile matter, showed that it compared favorably with other coals produced in the United States in regard to yield of tar, oils, pitch, benzol, phenol, ammonia, creosote and gas. Tests made at Sacramento and San Francisco for steam purposes showed that it was of excellent quality for locomotives and steamships.

Big Coal Development Expected

"Development of the Pacific Coast has been much retarded by lack of good coal for steam purposes and for coke for smelting ores and manufacturing iron and steel. Most of the coke has been brought here from a distance. A number of attempts have been made to establish steel works in western Washington, but these projects had to depend upon imported coke, and failed. With the development of this large deposit of good coking coal, suitable for the manufacture of iron and steel, the future of the manufacturing industries of the Pacific Northwest is said to be assured.

"It is almost inconceivable the vast quantity of coal that exists upon a 1,200-acre property here. The U. S. Geological Survey Bulletin 424, on the valuation of coal lands, states that a bed of bituminous coal one acre in extent and one foot thick contains approximately 1,750 tons of coal. Under good conditions of mining (about 86 per cent recovery) it should yield over 1,500 net tons per acre. There is a total thickness of 146 ft. of coal on the property, and a yield of 1,500 tons to the acre-foot would make an acre yield of 219,000 tons, or a total of 260,829,000 tons underlying the 1,200 acres. Seam croppings on the east and west and development in the center indicate that the whole area is underlain with coal of which about one-third is blocked out.

"It is believed that the eastern portion of Lewis County and upper Cowlitz Valley are destined soon to become one of the most important districts of Washington. Through this region, 75 miles east and west by 30 miles north and south, beginning at Cinnabar and extending to the summit of the Cascades, with Carlton Pass and Nesqually River on the north and Cowlitz Pass and Cowlitz River on the south, there extends a ridge of mountains in which, it is said, nature has a vast storehouse of coal and iron ores.

"On Summit, Carlton, Muddy and Skull creeks, the extreme head tributaries of the Cowlitz River, are found the anthracite coal deposits. At the headwaters of the Tilton River, on Lightning or Devils' Mountain, is a large deposit of hematite ore."

PENNSYLVANIA

Anthracite

Hazleton—The West Hazleton council is arranging to create a bureau of mines in that place, as authorized by the act of 1913. This bureau is empowered to send an engineer into underground workings at any time, and the company must furnish maps of all operations under the municipality. The object of this is that the city might get proper returns in taxes from coal mining.

The G. B. Markle Co., one of the largest independent anthracite operators, having an annual production of over 1,000,000 tons, will on and after April 1 will sell its coal direct to the trade. This company's well-known Jeddo and Highland Lehigh coals have been handled by the Lehigh Valley Coal Sales Co. for many years. Harry Hosford, who for many years has been connected with the Lehigh Valley Coal Co., will be the sales agent for the Markle company, with headquarters in New York. The official announcement issued by the G. B. Markle Co. says: "On and after April 1, 1920, G. B. Markle Co. will sell direct to the trade its celebrated Jeddo and Highland Lehigh coals, as its sales arrangement with the Lehigh Valley Coal Sales Co. will expire March 31, 1920. We ask that your orders for shipment after April 1 be promptly submitted direct to us for our consideration, addressed to G. B. Markle Co., Jeddo, Pa. We cannot tell you at this time what the prices for our coal f.o.b. mines will be in view of the fact that the wage contract with the anthracite mine workers expires March 31, 1920. Negotiations with the mine workers are now going on, and as soon as agreement is entered into, we will advise you our prices at the mines. We solicit your orders in advance, and any orders you may thus submit which are accepted by us will be contingent upon the acceptability to you of the prices we then name."

Bituminous

Pittsburgh—One hundred leading mining men of western Pennsylvania, including the examining boards for mine foremen and fire bosses of the various bituminous districts, met at the Seventh Avenue Hotel recently and discussed the questions which will be asked at the coming examination. The dates set for the examination are April 6 and 7 for the second-grade mine foremen, April 8 for the first-grade mine foremen and April 9 for the fire-boss tests.

Creighton—A property known as the Wainwright holdings consisting of 37 acres of coal lands was reported sold recently. The tract went to a manufacturing company which will erect modern buildings on it. The consideration was approximately \$100,000. The property lies between the Pennsylvania Railroad and the Allegheny River in Allegheny County. The identity of the purchaser was not disclosed.

WEST VIRGINIA

Longacre—Fire on the night of March 8 did damage to the extent of \$60,000 at the plant of the Kanawha and Hocking Coal Co. at this place in Fayette County. In the fire, the machine shop, store and office of the company were destroyed; records and accounts of the company in the office at the time of the fire going up in smoke. It was impossible to save any of the property destroyed, owing to the fact that the fire had gained such headway before being discovered. Increased gas pressure in a sleeping room above the store is generally ascribed as the cause of the fire.

Huntington—The Logan Operators' Association held its monthly meeting here on March 13. As illustrating conditions in the Logan field, figures were submitted to the members of the association, showing that wages had been advanced in the field about 125 per cent since 1914, yet since 1914 the cost of living had been advanced only 60 per cent. Other statistics submitted showed that the average working time for miners in the Logan field had been 97 hours for January and only 92 hours for February, a scarcity of cars during the two months having materially reduced the working time. The association agreed to an increase in power rates of 15 per cent for the Kentucky & West Virginia Power Co., whose application is now pending before the Public Service Commission; the power company desiring the increase so as to be able to double its capacity by the installation of a \$2,000,000 plant.

Charleston—Smokeless coal operators of West Virginia, in session at Washington for two days during the second week of March, devoted their attention in the main to the question of further control of the

coal industry, with particular reference to the re-establishment of the tidewater pool, the confirmation by the President of the powers delegated to the Director General of Railroads and to price control. A special committee was delegated to make a report as to the right of the Government to continue price-control regulations. The committee referred to submitted a report and as a part of that report the opinion of William Howard Taft, in which the latter held that the Railroad Administration is without legal authority to exercise control over the coal industry, and that there was no validity to orders issued under the Lever Act since October 30, 1919. A committee of the smokeless operators held a conference with the Attorney General and were informed by him that he would feel it necessary to prosecute if there were any infractions of the Lever Act. The committee appointed at the February meeting of the association, to take up with the Railroad Administration the question of securing payment for diverted and confiscated coal, made a report stating that considerable headway had been made in securing settlement for coal, about which there had been disputes, and that in the future more prompt payments might be expected.

Charleston—The properties of the Monte Coal Co., on Little Coal River, in the Kanawha district, changed hands on March 10, being purchased by the Buffalo-Thacker Coal Co., at a consideration of about \$1,000,000. L. R. Feese, president of the Buffalo-Thacker Coal Co., with headquarters in Huntington, acting on behalf of his company, consummated the deal for the purchase of the Monte company, at Philadelphia. The Monte company operated three mines at Ottawa on Little Coal River, the three mines having in the aggregate a capacity of 30,000 tons a month. With the purchase of the Monte mines the Buffalo-Thacker Coal Co. will have a monthly capacity of 50,000 tons a month. Identified with the Monte company were: Paul Hurdy, J. M. Moore, Charles M. Gohen, B. J. Heiner, J. K. Oney, J. H. LeBlanc, H. O. Aleshire, Thomas W. Harvey, R. P. Aleshire and W. G. Lax.

ILLINOIS

Springfield—Many local mines in this district are being closed on account of car shortage. The situation is becoming more critical every day. The Auburn mine has been closed several days and the Riverton, Junction and Capitol mines were able to run only a few hours a day, while the Divernon, Sherman, Sangamon and Citizens' mines are also closed some days. The operators and miners both feel that this car shortage is growing more serious and that instead of relief, greater difficulties may be expected. The Great Lakes docks have estimated that they will need 30,000,000 tons of coal and the Eastern operators are confident of the fact that they will be able to supply more than 10,000,000 tons of this amount. The Western operators seem quite confident that they will not be able to make up the deficit.

Duquoin—Reports have been circulated of the purchase of the Wabash, Chester & Western R.R., which runs through Tamaroa, north of here, by Jessie Diamond, president of the Southern Gem Coal Co. The report certifies that Mr. Diamond at least has an option on the road for the sum of \$500,000. This road has been changing hands quite frequently during the past four years and, in the event that the Southern Gem Coal Co. takes it over, it is practically assured of future operation, which up to this time has been difficult. The line passes through the heart of large acreages recently acquired by the Southern Gem and other large concerns, and it is understood that, with numerous extensions and switches, the road would furnish sufficient means of transportation for the product of the many new mines which are under consideration. Drilling is now in progress in many locations by various companies, and as far as can be seen good results have been shown by such prospecting. The Wabash, Chester & Western connects with the Illinois Central R.R. at two different places, also with the Chicago, Burlington & Quincy, these two being the largest shippers from the Southern Illinois fields.

Several hundred acres of coal lands were recently deeded by the West Frankfort Coal Co. and others to the Southern Gem Coal Co., most of which is located in Elk Prairie, Bald Hill and McClellan townships. The total consideration of the deeds filed was \$218,000. These new tracts will add to the already enormous holdings of the company.

One of the largest deals in the mining history of this section was recently consummated between the Peabody Coal Co. and the Franklin Coal & Coke Co., of Roy-

alton, 18 miles southeast of here. The deal included the two mines owned and operated by the Franklin Coal & Coke Co., also the large store of the Franklin Supply Co., 8,000 acres of coal lands and over 100 houses in the town. The amount paid by the Peabody Coal Co. for this property was approximately \$2,000,000.

The Rentschler Station mine located near Belleville, in Madison County, owned by the Enterprise Collieries Co., was recently sold to R. B. Clark, of Harrisburg, Ill., for \$35,000. The mine is located on the Louisville & Nashville R.R. It is not definitely known just what corporation Mr. Clark represents, but it is thought that, owing to the fact that the Aluminum Ore Co. recently bought the Southern Traction property and is buying up other coal properties along its right-of-way, this purchase would give the controlling power of this mine also to the Aluminum Ore Co.

Announcement has been made of the purchase of the Taylor and Carbon mines near O'Fallon, north of here, by the Perry County Coal Co., of Pinckneyville. The former owners of the two mines were J. Edward Yoch and Jacob B. Yoch, of Belleville, going under the business name of the Mutual Coal & Mining Co. The deal was made for a consideration of \$150,000.

The O'Gara mine No. 12 of the O'Gara Coal Co., located near Muddy, Saline County, has been closed down, and from appearances will be abandoned at once, as workmen are now busy removing all of the machinery, both on the surface and below ground. The company intends to take out the remaining coal belonging to No. 12 through No. 1 shaft, which is about half a mile north. The air shaft is also being filled in to prevent the sinking in of land surrounding.

ALABAMA

Birmingham—It is reported that the Ricton Mine, of the Big Warrior Coal Co., has begun shipping coal. This operation is located near the Warrior River, in Walker County, and the output will be handled by barge. New houses have been provided for employees and other improvements made.

It is also announced that the Corona Coal Co. is constructing a modern bath house for its employees at its Coal Valley operation, near Cordova, Walker County.

About 600 acres of coal lands belonging to the Gaston estate, located in St. Clair County, has been sold to Watt T. Brown, of Ragland, Ala. Mr. Brown now owns approximately 7,000 acres of coal lands in that section which, it is understood, he will develop at a later date.

Personals

George A. Miller, formerly southwestern sales manager for the Peabody Coal Co., of St. Louis, is now holding the same position with this company at Sheridan, Wyoming.

J. R. Hudelson, general manager and treasurer for the Franklin County Coal & Coke Co., of Royaltown, Ill., recently shot and killed himself. He was a prominent man in mining circles in that district.

T. O. Sloan, formerly head of the office force of the Peabody Coal Co., at West Frankfort, Ill., has been promoted to traveling auditor for the company and will have charge of this work at the various plants owned by the company in southern Illinois.

Fred G. Campbell, formerly chief clerk for the Peabody Coal Co., at Marion, Ill., has resigned to accept a better position in Wyoming, that of auditor of a big group of mines in that state. For some time he was also traveling auditor for the Peabody Coal Co.

A. B. McLaren, general superintendent of the chain of mines in southern Illinois, owned by the O'Gara Coal Co., of Chicago, has resigned, effective at once. This announcement was made together with the report of a serious operation which was recently performed upon the superintendent. His successor has not yet been named.

John J. Mulvehill has resigned as chief clerk to Frank R. Lyon, vice president of the Consolidation Coal Co. to become identified with the J. C. McKinley Coal, Oil and Gas Co., at Wheeling, W. Va. For several years Mr. Mulvehill was secretary to Geo. T. Watson while the latter was vice president of the Consolidation company.

Arthur Evans, for several years chief clerk of the Jefferson & Clearfield Coal & Iron Co. at McIntyre, Pa., has been promoted to a similar position with the Rochester & Pittsburgh Coal & Iron Co., at Lucerne mines, near Homer City, Pa. The Lucerne plant is the largest in Indiana County.

Charles C. Werner, of Somerset, Pa., who has been the acting chief engineer of the Consolidation Coal Co. in the Maryland district, has resigned to accept an important post with the Penn-Mary Coal Co., with headquarters at Reedsville, W. Va., the Penn-Mary company being a subsidiary of the Bethlehem Steel Corporation.

Major Samuel D. Brady, of Fairmont, W. Va., has been elected a director in the Upper Potomac Coal Association, operators of mines in the upper Potomac field composing the association. The officers of the association are: T. M. Dodson, of Bethlehem, Pa., president, and Howard P. Brydon, of Cumberland, Md., executive secretary. Major Brady operates mines in the Fairmont field as well as in the upper Potomac, or Western Maryland field.

D. S. Hanley has announced his resignation as general manager of the Pacific Coast Coal Co., of New Castle, in Kings County, Wash. He leaves the service of the local company to become assistant to the president of the East Ohio Gas Co., at Cleveland, Ohio. Mr. Hanley has for many years been associated with Martin B. Daly, president of the concern to which he now goes, in fact, he came to the Pacific coast some years ago to manage Mr. Daly's coal property at Bayne; the property was in operation until the recent coal strike, at which time the machinery was taken out and the mine closed. It is said that the property will not be reopened until the operators and miners can agree on a basis permitting of running the plant at a profit. Mr. Hanley will be succeeded by Wyle Hemphill, assistant to the vice president of the Pacific Coast Coal Co.

Obituary

Morgan Llewellyn, died on Feb. 17, 1920. He was the active vice-president of the Walsh & Weldner Boiler Co., of Chattanooga, Tenn.

James J. Flannery, president of the Montour & Lake Erie Coal Co., and a prominent manufacturer, died at his home in Pittsburgh, Pa., on March 6. Mr. Flannery was also a member of the board of directors of the Wharton Steel Co. He is survived by his widow and nine children.

J. R. Hudelson, aged 40, general manager and treasurer of the Franklin County Coal & Coke Co., at Royaltown, shot and killed himself. The sale of the Franklin County company properties to the Peabody Coal Co., of Chicago, is being negotiated, the consideration being \$2,000,000. Mr. Hudelson was one of the influential business men in the mining circles of Franklin County. Worry over the sale of the property is believed to have caused him to take his life. A widow and one child survive.

Frank C. Smith, former president of the Reading Iron Co., and a prominent figure in the development of Reading as one of the centers of the iron industry, died on March 3, of a complication of diseases, at his home in Reading. He was 74 years of age. After an early training with the Philadelphia & Reading Ry. Co. and in Reading banking circles, Mr. Smith in 1873 entered the service of the Reading Iron Works as business manager, and remained as such until the organization of the Reading Iron Co. in 1889, when he was made treasurer, and later vice president and general manager, under the presidency of the late George F. Baer, whom he succeeded in 1902. He was a director of the Penn-Mary Coal Co., and a number of other organizations.

Coming Meetings

National Coal Association will hold its annual meeting May 25, 26 and 27 at the Traymore Hotel, Atlantic City, N. J. Secretary, W. B. Reed, Commercial Bank Building, Washington, D. C.

The American Association of Engineers will hold its annual convention at the Planters Hotel, St. Louis, Mo., May 10 and 11. C. E. Drayer, secretary, Chicago, Ill.

National Foreign Trade Convention to be held in San Francisco, Cal., May 12, 13, 14 and 15.

Chicago Coal Merchants' Association will hold its annual meeting April 13, at Chicago, Ill. Secretary, A. H. Kendall, Chicago, Ill.

American Chemical Society will hold its annual meeting at St. Louis, Mo., April 13, 14, 15 and 16. Secretary, Dr. Charles L. Parsons, 1709 G. St., N. W., Washington, D. C.

National Retail Coal Merchants' Association will hold its annual meeting June 10, 11 and 12 at Detroit, Mich. Secretary-manager, Ellery Gordon, Philadelphia, Pa.

Kentucky Mining Institute will hold its annual meeting June 4 and 5 at Lexington, Ky. Secretary, C. W. Strickland, Huntington, W. Va.

American Society of Mechanical Engineers will hold its spring meeting May 24, 25, 26 and 27 at St. Louis, Mo. Secretary, Calvin W. Rice, 29 West 39th St., New York City.

Chamber of Commerce of the United States of America will hold its eighth annual meeting April 26, 27, 28 and 29 at Atlantic City, N. J. Assistant Secretary, D. A. Skinner, Washington, D. C.

Industrial News

Kemmerer, Wyo.—The old Star coal mine, eight miles from this place, has been secured by Utah capitalists and soon will be in the producing class. The Star Coal Mining Co., capital stock \$500,000, is to be organized to operate the property.

Beckley, W. Va.—A branch office has been opened in this place by the Fort Dearborn Coal & Export Co., of Chicago, the same company having offices in New York, Chicago, Cincinnati and Norfolk. M. B. Hoffman will be placed in charge of the Beckley office of the company.

Reading, Pa.—At the annual meeting of the Reading Iron Co., W. W. Williams, formerly general manager, was appointed vice president in charge of sales and operation, and J. M. Callen, former second vice president, was appointed vice president in charge of purchases and distribution of materials. Other officers re-elected are: L. E. Thomas, president; G. W. Delany, secretary; H. N. Yost, treasurer; R. J. Wenger, assistant treasurer.

Philadelphia, Pa.—Maderia, Hill & Co., a miner and shipper of anthracite and bituminous coal, with headquarters in this city, has acquired the property of the Rockhill Iron & Coal Co., in Huntingdon, Blair and Fulton counties. Included in the deal is control of the East Broad Top R.R. & Coal Co., operating a line 50 miles long and connecting with the Pennsylvania R.R. at Mt. Union. Six mines with an annual output of about 750,000 tons are involved, and it is said the annual capacity will be increased to 1,000,000 tons.

Charleston, W. Va.—Action has been taken by the directors of the Greenbrier & Eastern Ry. Co. looking toward the opening of about 120,000 acres of coal and timber land in Greenbrier County. The directors of this road have reached a decision to initiate work in the near future in the road, which will be nearly nine miles in length, and which will be constructed from Rainelle, along Meadow Creek, penetrating the large area of coal lands owned by the Gauley Coal Land Co. Those active in promoting the building of the new road are John B. Laing, R. M. Bell, John Raine, J. Wade Bell, Agnew Morton and a number of others.

New York, N. Y.—Final argument in the tidewater demurrage complaint instituted by the Wholesale Coal Trade Association of New York, Inc., was heard recently by the Interstate Commerce Commission, at Washington. The arguments for the complaining association were made by Charles D. Drayton of counsel, and by Charles S. Allen, its secretary, and were listened to by the eight members of the commission. More than \$1,250,000 in demurrage charges are involved in the suit, which is to recover alleged excessive charges incurred for the most part as a result of the various local harbor strikes, and pending the rendering of the final decision the association several months ago succeeded in having suspended the payment of charges aggregating about three-quarters of a million dollars. Commissioner McChord has already rendered a tentative report, and it was on this report that the entire commission heard oral argument last week. It is expected that the final decision will be handed down within sixty days.

Huntington, W. Va.—Directors of the Norfolk & Western R.R. at a recent meeting, indicated that they would be willing to construct a branch line from Lenora, on the Twelve Pole Branch of the road up Pigeon Creek in Mingo County. During the second week of the month, negotiations concluded at Huntington, which insure the early development of a virgin coal area, in which development fully \$10,000,000 is involved. In the first place the railroad will make an outlay of \$2,000,-

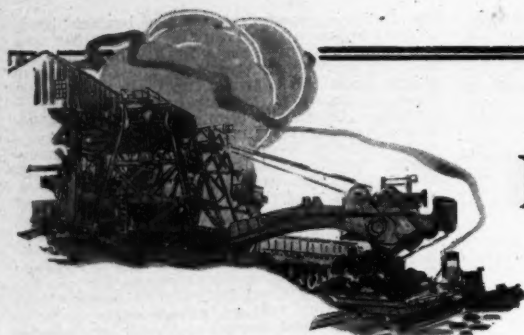
000 for the construction of a branch line, if final approval is given the project for the extension, as now seems highly probable in view of the fact that a deal closed between March 8 and 13, between the United Thacker Coal & Land Co. (largely dominated by Kountze Brothers, bankers of New York) and a number of Huntington parties. Large areas of the Pigeon Creek territory were leased by the company named, to the following: H. H. Morris, president and general manager of the West Virginia Standard Coal Co. and the Kentucky-Elkhorn By-Products Co., 2,800 acres; A. B. Rawn, general manager of the Consolidated Collieries Company, 2,500 to 3,000 acres; Garner Fletcher, general manager of the Elkhorn Piney-Coal Co., 11,750 acres. Companies will be formed at an early date to develop the land leased and such companies will vary in capitalization from \$300,000 to \$1,000,000. It is estimated that more than \$5,000,000 will be expended within the next few years in the development of coal land in the Pigeon Creek territory.

Logan, W. Va.—Capitalized at \$2,000,000, the Guyan Collieries Corporation has been organized for the purpose of purchasing and later developing 11,000 acres of coal land on the Guyan branch of the Chesapeake & Ohio; the tract to be purchased being located on the southwestern side of the Guyan River about 37 miles from Logan, near Gilbert. It is proposed to issue \$1,000,000 in 8 per cent preferred stock and \$1,000,000 in common stock. The company will have six workable seams available for development, such seams being the Cedar Grove, Alma, No. 2 Gas, War Eagle, Bens Creek and the Lower War Eagle. That portion of the 11,000 acres already reached by railroad is to be developed at once. By 1924 the new company hopes to have a production of 300,000 tons per year. The leading men in the new company are, W. P. Tams, of Tams, and J. B. Clifton, of Beckley. The former will direct the development work of the company. Besides Mr. Clifton and Mr. Tams, those interested in the new corporation are: J. H. Hatcher, W. H. McGinnis, of Beckley; G. E. Vaughan, of Lynchburg, Va. Officers of the company are W. P. Tams, president and general manager; J. B. Clifton, vice president.

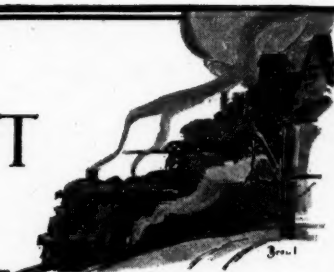
Huntington, W. Va.—Fifty million dollars will be expended in opening mines and making improvements in the Big Sandy, Logan, Kanawha and New River fields, if provision is made by the Chesapeake & Ohio R.R. to handle the additional output, according to an announcement made here on March 13 by J. J. Ross, head of the Logan Operators Association, as the result of a conference of operators representing the fields named. Mr. Ross declares further growth of the coal industry in the territory reached by the Chesapeake & Ohio is entirely dependent upon transportation facilities furnished by that road, which are even now inadequate to take care of present tonnage. A committee was appointed at the meeting here on the thirteenth to hold a conference with directors of the Chesapeake & Ohio at New York on the nineteenth, at which time the directors will be asked to obtain from the Government a loan of from \$30,000,000 to \$50,000,000 for improvements, so that adequate provision may be made for handling 50,000,000 tons annually. Should the directors of the Chesapeake & Ohio decline to acquiesce in the requests for improvements the Interstate Commerce Commission will be asked to cause the railroad to provide the additional transportation facilities. It is desired to have the Chesapeake & Ohio install double track for a distance of 20 miles on the Guyan branch, and the road will also be asked to construct a third track from Barboursville, W. Va., to Russell, Ky. The opening of new mines on the Chesapeake & Ohio, during the last two years, with no increase in equipment, has only served to cut down the number of cars for each mine.

Louisville, Ky.—The Pittsburgh Coal & Coke Co., capitalized at \$1,000,000, and the Pittsburgh Fuel Co., capitalized at \$100,000 have been incorporated as Kentucky concerns and will take over local interest of the Pittsburgh Coal Co. The incorporators are Charles O'Connor, R. B. Hickman, M. W. Ades, George E. Bohmer, B. A. Leonard and others. They are all Louisville men. Negotiations for formation of the company and purchase of the Pittsburgh Coal Co.'s holdings have been in progress several weeks. The granting of a charter was delayed temporarily because of the similarity of names between the old and new companies.

A. J. Carroll, attorney for the incorporators, said permission to use a similar name had been granted by the Pittsburgh Coal Co. along with the "good will" transferred with the property.



MARKET DEPARTMENT



Weekly Review

Slight Improvement in Car Supply—Much Interest Is Shown in Results of Bituminous Commission—Export Business Continues Under Permit System—Floods Interfere with Anthracite Production

UNDER private operation the railroads are already showing a better car distribution. Where it had required from ten days to two weeks to bring cars of coal from mine to tide under Government operation, the time has been reduced to from three to four days in many instances. Empties from the Eastern territory, especially in New England, have been returned in increasing volume, as the railroads are making every effort to return cars to their respective home lines. It is asserted that operators will be satisfied with the number of cars supplied to the mines during April and May. However, a well-informed operator is of the opinion that the shortage of cars next October will be greater than at any previous date.

The President's action on the report of the Wage Commission is being especially awaited by operators over the entire country, both anthracite and bituminous. The feeling that price restrictions should be removed or some other workable plan adopted other than now existing is spreading more and more. Just what will result from

Senator Frelinghuysen's bill before the Senate, in which he suggests a Fuel Controller for the whole country to be paid by the Government, is hard to predict.

Few operators feel inclined to obligate themselves to ship until after May 1 or May 15 and some have decided to suspend operations entirely until they may secure the right to sell their product with profit. Although much is heard of price violations the Government has not as yet interfered.

A good business continues at tide, especially in the bunkering trade, and there seems to be quite a liberal offering of tonnage for this business. Under the permit system, the export business also continues, though moderately, as it is easier to secure permits than it is to obtain bottoms for loading, thus causing great annoyance.

In New England the old-line companies are at last beginning to make quotations for lump gas coal to be delivered during the coming coal year, the price being from \$3.85 to \$4.25. Up to this time they have hesitated to quote a price owing to the prevailing

uncertainty as to legislation and labor troubles.

Owing to the wage parleys, the outcome of which will inevitably be that the consumer will have to pay higher prices for coal, the retailers are in an unsatisfactory position. They have not been soliciting business for summer fillings, as had been their custom, for they are not in a position to quote a definite price. To make matters worse, consumers of domestic sizes are fully alive to the possibilities of the situation and in consequence are growing quite anxious. As a result, inquiries to the retailers are being made by the hundreds.

Much to the disgust of both operator and wholesaler, floods have been prevalent during the past week in the anthracite region and many of the collieries were forced to shut down, thus curtailing production considerably.

Coke production in the Connellsville region has varied not more than a few thousands of tons from week to week since the first of the year and practically the entire output is moving out on contract.

WEEKLY PRODUCTION

The weekly report on the production of bituminous coal, anthracite, and beehive coke, compiled by the Geological Survey, Department of the Interior, March 20, 1920, states that complete returns from the coal-originating roads indicate that production of soft coal during the first week of March was smaller than at first reported, amounting to only 10,009,000 net tons. The output during the following week (March 7-13) is estimated at 10,125,000 tons. This was a slight recovery over the preceding week and brought production up to almost exactly the level of the last week of February. The daily average during the first half of March was 1,752,000 tons. During January and February it had been 1,766,000 tons. The decrease was due in part to the severe blizzard which moved from the Great Plains to the Atlantic Coast during the latter part of the first week of March and the beginning of the second. The cumulative production during the first 62 working days of the past four years has been:

	Production first 62 working days
1917	111,543,000
1918	108,690,000
1919	89,126,000
1920	108,950,000

The tonnage so far produced in 1920 exceeds 1918 and 1919, but is 2,593,000 tons behind 1917.

The mines of the country lost on the average 2.1 per cent of full time because of labor shortage.

Rail shipments of beehive coke declined slightly during the week ended March 13. Reports received from 26 carriers originating approximately 97 per cent of the total tonnage shipped by rail indicate a production of 409,000 net tons, a decrease of 3,000 tons, or 0.7 per cent, when compared with the preceding week. The decrease occurred in the Middle and Southern Appalachian regions. The production of Pennsylvania and Ohio, on the contrary, was slightly larger, rising from 313,000 tons during the preceding week, to 315,000 tons; and from the Connellsville region a somewhat greater increase was reported. Production for that region is reported by the Connellsville Courier at 244,470 tons, an increase of 2.5 per cent over the week of March 6.

An active demand continues for beehive coke, caused to a large extent by scarcity of coal at byproduct ovens. Production is restricted by a shortage of coke cars. The cumulative production since the beginning of the year now amounts to 4,529,000 tons, a decrease when compared with the corresponding period in 1919 amounting to 590,000 tons, or 11.5 per cent.

Atlantic Seaboard

BOSTON

Car supply light, much interest in contracts. High grades hard to cover. Little coal available at piers. Hampton Roads shippers suffer from car shortage. Pressure strong for domestic sizes. Buckwheats less in demand.

Bituminous—Congestion on the New England roads has now been pretty well cleared up, although there are still hundreds of cars on sidings waiting for power to move them. Through the gateways movement continues to improve. The intervening roads, notably the New York Central, are also gradually clearing up their lines and receipts here are enough greater to help the current situation very materially. The milder weather has also had its effect and there is much less anxiety than was the case a fortnight ago.

For the most part the railroads have ceased grabbing coal in transit and so far as we are aware coal shipped the first two weeks in March is coming through practically without interruption. Shipments the past week, however, have shown a distinct falling off. Two bridges on one of the main arteries of the New York Central near

the region were swept away by floods and this has so seriously held up the return of empties that car supply for the whole week has been very light.

Water damage has caused a large number of mines in Central Pennsylvania to suspend operations, and this together with car shortage has meant a heavy loss in tonnage. Large producers have had their mines idle for two and three days at a time and this certainly is not encouraging for New England industrial plants that are going to be in need of fuel during April.

Empties from this territory, however, are being sent back in increasing volume and cars should be in much better supply by the end of the month. The railroads are also making every effort to return the cars to their home lines, and operatives feel that this will have a tendency to increase the supply during April and May.

There is still much interest in contracts. Several large buyers find it difficult to arrange for supply, especially of the better grades. In some cases they have been able to cover but 10 to 20 per cent of expected requirements. They now feel they should have bought more actively a month ago when coal was being more generally offered. At that time it was not so difficult to buy fair coals at very close to present Government price, but today it is unusual to get an offer of less than \$3.75 or \$4 per net ton at the mines, plus wage increases, etc.

The trade is anxiously awaiting the President's action on the report of the Wage Commission. The feeling grows that price restrictions should be removed, or some more workable plan devised than that now in effect. Few operators will be inclined to obligate themselves to ship beyond May 1 or May 15 under the present price regulations; in fact there is a very general feeling that they will suspend operations altogether, if they cannot in some way secure something like the present authorized price for export and bunker trade.

In consequence, buyers here find it more and more difficult to get contracts, even though they undertake to pay a competitive price for use if and when restrictions are withdrawn. Moreover, the Pennsylvania shippers are anxious lest they lose any present foothold in the export market. Coal from Hampton Roads has distinctly the advantage in the offshore cargo business and it will be necessary for those who ship from Philadelphia or New York to keep themselves as strongly represented as possible.

One of the largest factors is actively canvassing for low-volatile coal of recognized quality and this shows the extent to which the Pennsylvania operators are following this more lucrative trade. Under the circumstances, it is easy to see that New England will not get much of this coal unless it bids a competitive figure.

At the New York and Philadelphia piers only small tonnages are available. These are either on contract or held for export. Of spot coal there is a great scarcity. At the same time it is a matter of comment in the trade that relatively so few premiums are exacted, even though premiums are against the regulations. Much is heard of price violations all-rail. Should these continue it almost seems as if the Government would have to take cognizance.

At Hampton Roads the situation has changed rapidly for the worse. Car supply on all three roads has been light, and the number of bottoms waiting has steadily increased. At Newport News on March 15 there were 163,000 tons of boats waiting, with but 25 per cent of the coal on hand. Heavy demurrage has accrued the past week and at this writing there is no prospect of better car supply. Most of the delay has been borne by steamers chartered for overseas; coastwise boats have not suffered to the same extent.

So far, the Hampton Roads agencies have made no moves on contracts. The authorized price is much too low and until authority is given for an advance in keeping with the export price, offerings of Pocahontas and New River in this market will be relatively small.

Anthracite—Demand continues urgent for all the domestic sizes. Retail dealers are not only short on supply, but they are much impressed with the advantage of getting forward coal under present circular. There are rumors of advanced barge freights, effective April 1, if not before, and there is also a feeling that railroad freights will also be marked up before many weeks have elapsed. Consumers are putting in their orders for refills to a greater extent than in any of the recent years and there is every indication that trade will be very brisk, at least until prices are lifted in the spring.

The steam sizes are somewhat less in

demand than earlier in the month. Some contracts have been made at last year's price, plus the wage increase, the amount of which is to be figured later. Other shippers are disinclined to make prices on any basis until the present wage conference reaches a conclusion. While the movement into New England the past thirty days has been heavier than at any time since 1918, yet the aggregate tonnage has been much smaller than during the spring months of that year.

NEW YORK

No let up in demand. Floods in the mining regions curtail production. Bituminous operators move slowly in making contracts. Car supply poor. Longshoremen's strike injures bunkering. Railroads continue to confiscate coal.

Anthracite—Instead of the usual lull in the anthracite market which usually precedes April 1 the demand this month remains strong and heavy. Usually dealers and consumers take the month of March to clean out their bins in anticipation of the spring reduction of 50c per ton on domestic coal prices, but that situation is absent this year. Instead both dealers and consumers are not anticipating any lower prices on April 1 and are willing to refill their bins.

Contrary to custom, the public appears to be little concerned in the negotiations now in progress in this city between the mine owners and their employees and which will undoubtedly mean an advance in wages to the workers and higher prices for the consumers. This unconcern may be due to the little publicity given the conferences by the daily newspapers. Heretofore during these conferences there has been much said about the probability of the suspension of mining and the lack of coal. This year, however, there has been very little of this kind of publicity, and as a result there is not that rush for coal that usually occurs.

However, shippers have no trouble to get rid of their tonnage, whether it be domestic or the smaller sizes. The heavy storms of the past few weeks did considerable damage to many of the mines in lower Luzerne and parts of Schuylkill counties, with the result that production and shipments were considerably curtailed. It was reported that some of the smaller mines had suffered greatly because of the thawing of the heavy snows along the mountain sides.

There has been no relaxation in the demand for the larger sizes and where one shipper might be easy with one or another of the coals his neighbor might be short of those sizes. Stove coal appears to be on a par with egg so far as shortness goes. Chestnut and pea are easier but there is no surplus.

The steam coals are higher because of the cut in receipts due to the floods in the mining regions. There is not that supply of barley that was present a week back, and shippers have little trouble in getting rid of the better grades at company circular or slight advances. Buckwheat and rice are in good demand, the former being mixed with bituminous by consumers in many instances. Quotations vary according to grades and in some cases the urgency of the occasion.

Current quotations for company coal per gross ton at mine and f.o.b., tidewater, at the lower ports are as follows:

	Mine	Tidewater
Broken.....	\$5.95	\$7.80
Egg.....	6.35	8.20
Stove.....	6.60	8.45
Chestnut.....	6.70	8.55
Pea.....	5.30	7.05
Buckwheat.....	3.40	5.15
Rice.....	2.75	4.50
Barley.....	2.25	4.00
Boiler.....	2.50	4.25

Quotations for domestic coals at the upper ports are generally 5c. higher on account of the difference in freight rates.

Bituminous—The market here waited all week for some word from Washington regarding the acceptance or rejection of the Bituminous Wage Commission's report. Late on Friday newspaper dispatches stated that President Wilson expects the operators and miners to work out their contracts for the new coal year on the basis of the majority report.

Operators and shippers are moving carefully in making contracts for the next year's supply of coal and are particular to specify that the price after the end of government control is subject to change after the Wage Commission's report has been accepted. The repeal of those sections of the Lever Law relating to the coal industry will, the trade believes, do more to stabilize the industry than anything else at this time.

The failure of the car supply to improve has not helped the local situation. There is a lack of free coals and spot buyers have little success. The bunker business has received another setback because of a longshoremen's strike which affected principally the coastwise vessels. More than 7,000 workers were reported out along the Atlantic Coast, tying up many ships. However, because of the slow shipments dealers in these coals did not complain of an oversupply.

Railroads continue to confiscate considerable coal and frequent complaints are made by shippers because of this. Considerable dissatisfaction is also caused by the long wait for payment.

Many operators are refusing orders for shipments, especially if intended for tide-water, they preferring to ship to line points. There is a brisk demand for coal for export but as heretofore bottoms are scarce.

The government price still holds good for quotations for free coals but there is none to be had here, practically all the available coal being taken for bunkering purposes where the selling price is \$1.35 above the \$2.95 mine price. Government prices prevail on all coal not shipped on contract. They are as follows:

	Mine-Pre-Run, pared.	Slack
Central Pennsylvania.....	\$2.95	\$2.95
Western Pennsylvania.....	2.35	2.60
Fairmont (Gas).....	2.50	2.75
George's Creek, Upper Cumberland and Piedmont Fields.....	2.75	3.00

PHILADELPHIA

Anthracite market tightens up. Floods in the region cut down production. Little stove and nut arrive. Pea coal in strong demand. Consumer anxious for spring prices. No wage decision yet. Steam sizes scarce, especially buckwheat. Premiums offered on all sizes.

Anthracite—There has been a decided tightening up in anthracite. With April fast approaching and no definite understanding with the miners, there seems to be a scramble on to get as much coal on hand as possible. Whereas a few weeks ago many of the smaller companies were glad to take orders for sizes from pea down to and including barley, the situation has changed to the extent that there is really no coal offering at all.

With the situation as it is it is not surprising that the market has tightened up, although there are few who really believe that the miners will cease work. However, this is such an uncertain proposition that no one is taking a chance.

To complicate matters the mines have been almost drowned out for the past week and one of the big companies alone had thirty collieries idle on three successive days, with not less than ten down for the entire week. Some independent operations have been closed for even longer periods, particularly washeries. The offices of the shippers began to assume the appearance of war times, with the retail men on hand in numbers to urge more deliveries.

With the exception of pea coal the local retailers have the most meager supply of coal on hand and even this size is in extremely strong demand. There is no question now that pea has come into its own again. Many consumers whose supply of the larger sizes has run out need no urging to take pea, especially since the milder weather enables them to burn this size with little trouble. There is hardly a shipper in the city who is not anxious to get more pea and is actually urging his shippers to let it come out as fast as possible. As it is the market must depend entirely upon fresh-mined coal, as there is no tonnage of this size in the storage yards at all. With the scarcity of all sizes of coal the premiums on family sizes in many instances have run up well upon the standard 75 per cent of the leading independents. To be sure, these increases are being asked mostly by the brokerage houses, but they have little difficulty in getting their prices. It is also believed that much of the high-priced coal is going into New England, as the call from there is particularly strong.

Due to the wage parley with the miners the retailers are in an unsatisfactory position, as all of them have been accustomed at this time of the year to begin soliciting business for summer filling. Now they are afraid to go after this trade, as they are not in position to quote a price. To make it worse the consumers are fully alive to the possibilities of the situation and are making inquiries by the hundreds as to when they can have their cellars filled.

Many of such inquirers are under the impression that all they need do is to give their order to the dealer and that will insure them the present price. It is quite a shock to most of them when the retail man is compelled to advise that he cannot

take any orders at a price. Of course a few of the dealers will make deliveries, if they can get coal, to the best of their trade who are worthy of credit, with the understanding that the price is to be based upon whatever retail price will be established following the announcement of prices by the shippers after the wage settlement.

There is the strongest kind of activity in the steam trade. For new customers to get buckwheat is almost out of the question, except that there is a limited amount of tonnage offering by some shippers at premium prices. If any proof were needed of the boom in steam sizes it would be in the fact that individual producers will not take any new business on the smaller steam sizes, rice and barley. These two latter sizes have been selling off price for the past six to eight weeks, but have now decidedly tightened.

It would seem that most of this tonnage is going to tide, where the report has it that neat premiums are being offered. The big companies have heavy tonnages of both these sizes in their storage yards, but they are working on the piles as heavily as their equipment will permit. Due to the heavy floods in the rivers throughout the anthracite region practically all of the river washeries are out of commission and this has taken quite a little tonnage of steam coal out of the market.

Bituminous—There is not the least easing off in the demand for coal and all consumers are eager to get hold of tonnage. Unfortunately there has been no increase of fuel to the local industries this past week and a great many plants are simply running from day to day with the hope that they will soon be able to accumulate some kind of surplus.

Of course, the chief explanation of the shortage continues to be car supply, but the fact that the New England railroads are once more in position to take good shipments, diverts much tonnage from this territory. Shipments to that point seem to be increasing and this also ties up a considerable number of cars, as since boat freights got to such a high point the all-rail shipments have been growing.

Naturally with the coming of softer weather both shipper and consumer had been hoping for increased production, but so far, despite milder weather, all the circumstances have been against real relief. The consumer is growing more anxious each day and they are fearful of the outcome of the wage dispute, especially since it was learned late in the week that the President had favored the report of the majority on the commission, as against the minority or miners' representative.

One thing is certain, and that is should the miners decide to stop work the country would face the worst condition in its history, as the amount of coal above ground at this time is the lowest for years. So it can easily be seen why the consumers are particularly anxious to get ahead. Even the utility plants hereabouts who have been accustomed for the past few years to carry stocks enough for three and four months are down to a 40 to 60-day basis.

There is still a certain amount of contract activity in the trade, but the tenders by the shippers are only being made to the cream of their trade, and seem to be more of an effort on their part to keep their good trade in line rather than to fix upon a price. To be sure, they are quoting prices from \$3.50 to \$3.75, but all figures are subject to whatever wage scale is agreed upon with the miners. Up to that time coal is simply to be shipped at the prevailing Government price. With the situation inclined to grow somewhat tense, there is more of a tendency on the part of the consumer to consider contract offers, yet on the other hand there has also been something of an easing up in the efforts of the producer to talk contract.

An odd part of the present situation is the fact that many concerns are apparently able to get quite a plenitude of coal, while other equally strong consumers are riding on the edge of a short supply. Some consumers in the latter class are inclined to become bitter in the criticism of this condition and intimate that the Government figures are not being lived up to.

Whether this is true or not it is a known fact that the shippers are becoming of the opinion that the law controlling prices will not stand the test of law, and it might be that those concerns most loudly proclaiming this fact are proving the courage of their convictions and getting a better price for their coal. Some local consumers, in this connection, have received letters from shippers calling upon them to use their influence in having the Lever act repealed.

There has lately been something of an increase in the number of confiscations by the railroads of fuel in transit. This has been another bone of contention between the consumer and the transportation line.

While the former does not deny the necessity for such acts, the claim is made that the fuels officials should use at least a little judgment in their seizures.

A case has been cited where a plant had only two days' supply on hand, but had two cars in transit within a day's run of the plant, but before they arrived they were taken for motive fuel. The obvious thing to do in such an instance would be to ascertain the condition of the plant whose fuel it was intended to take.

There continues to be good business at tide, especially in the bunker trade and there seems to be quite a liberal offering of tonnage for this business. The fact that bunker prices are hovering around \$3.40 @ \$3.60 accounts in a measure for this. As to export shipments, the embargo levied weeks ago is still on, but the permit system is still in vogue and a good many shippers seem able to secure permits. It would seem, if anything, it is easier to procure a permit than it is a bottom for loading.

BALTIMORE

Much coal sold above government price. Majority of handlers refuse to follow until question is legally settled. Car supply still short. Better time between mines and tide aids considerably. Decided demand begins for hard coal for next winter.

Bituminous—Inquiry around the trade in Baltimore brings little news of any government priced coal. On the other hand there are undoubtedly a number of sales of coal above the government price, from sources that have formally notified the government that they would so sell and in which cases no action has been taken to stop such sales, and from sources that are "just selling." This does not mean that anything like a majority of dealers here are selling coal above the maximum; the fact is that most of them are abiding strictly to schedule through the fact that they are not selling coal in the open market but are confining their efforts to deliveries on contracts, as the reduced car supply and movement from mines prevents their getting more than enough fuel to take care of this more profitable end of the business.

All are praying for the day when it will be legally correct to sell coal to best advantage in a competitive market. The car supply remains short and loadings much below normal. About a fifty per cent run was shown on the Baltimore & Ohio last week starting at 81 per cent and running down to 38 per cent. The daily loading high was on Tuesday, 3,768 cars but other days of the week merely ran between 1,940 cars a day to 2,089, the next high twenty-four hour loading.

Under private operation the railroads are already showing a much better delivery time, however, and the time of ten days or two weeks so recently experienced by the coal trade in getting a car from mines to tide has been cut to three and four days in many cases. An exceptional delivery was made last week in less than two days. The reserve at Curtis Bay grows steadily better, starting with less than 500 cars the first of the week and running up between 500 and 600 at present, the daily run to the piers being between 200 and 350 cars, while dumpings for the most part do not exceed 150 cars a day because of stoppage of exporting and almost complete cutting off of foreign bunkering.

Anthracite—The trade is in a state of uncertainty as to spring prices—and with April only a few days away. It knows not whether there will be a spring reduction at all, whether the miners' demands will be granted in a way to seriously advance all prices, whether premiums will grow still greater on independent coal, or whether freight rates will be reduced in order to induce summer purchasing.

It is certain of one thing, however, and that is that coal is not going to be any lower than the present schedule; at least that is a moral certainty to observing dealers, as many of the public see the handwriting on the wall. Orders are not only still coming in for the end winter business (because it has grown quite cold again at times) but because consumers are asking that full deliveries for storage for next winter be made at once.

A number of dealers who have been fortunate enough to get through considerable coal are making considerable deliveries on orders for next winter consumption. Most of the dealers have already begun to weigh the situation carefully, and at present a near-spring spectacle of unusual kind is to be witnessed, namely apportioning of coal and delivery of but part of orders.

Much interest is centered on the outcome of the wage parley now in meeting at New York. No wage agreement is hardly expected until all of the grievances between

both miner and operator have been threshed out. Just how long this will take none can tell.

Eastern-Inland

PITTSBURGH

Rumored evasions of price limits. High prices expected later.

Reports are being circulated more freely that the price restrictions on coal are being evaded, but if there are evasions they are practiced with considerable secrecy, there being no open transactions at above the set limits. There is no secrecy, however, about the fact that the operators are greatly annoyed that the price restrictions continue, as they see a shortage of coal and many buyers willing to pay high prices for coal.

Some references are being made to former President Taft's legal opinion, recently rendered, that confiscation of coal is not justified by the Lever act, but the awkward feature in using this opinion as an argument that the price fixing is illegal is that Mr. Taft's opinion has some reference to the question whether the country is at war, and when the wage dispute arose the operators took the position that the state of war still existed.

Some well-posted coal operators hold very strong views as to high values of coal in the coming spring and summer, and indeed for the remainder of the year. These operators point out that consumers have had such trying experiences in the past few months with coal shortage that they are certain not to forget them, and there is therefore expected a heavy demand for coal for stocking purposes, sufficient to maintain much higher prices than the present set figures.

It is commonly assumed that the wage settlement will involve either recommendation or tacit approval of higher prices, and the trade has no definite information as to the status of the wage award except that the President has been seeking to bring about a unanimous recommendation by the Robinson Commission.

The market is quotable practically nominal at Government limits, \$2.10 for slack, \$2.35 for mine-run and \$2.60 for screened, per net ton at mine, Pittsburgh district, with 15c. brokerage allowed in addition in certain cases.

COLUMBUS

Higher temperatures in central Ohio have relieved the stress in the domestic trade. Steam business is active. Car shortage is still the bad feature.

The stress of the domestic trade has been relieved to a large degree by milder weather which has succeeded the cold wave of the early part of March. As a result, dealers have been able to secure some reserve stocks and are taking care of their customers in good shape. The relief is the most pronounced in Columbus and central Ohio points while the northern part of the state is still experiencing a shortage of domestic sizes.

With the coming of milder weather the natural gas pressure has been bettered, and that has aided in solving the problem. Retail prices are firm in every way, still governed by federal figures. The business is tending largely toward small orders to fill out the winter's requirements. Pocahontas is quite scarce, while certain West Virginia grades are coming in fairly well. Hocking and Pomeroy lump constitute the large part of the Columbus supply.

Steam business is active to the extreme and the milder weather has had very little effect on that department of the trade. Steam plants are buying actively not only for present needs but for future requirements. Some have been securing a small reserve to guard against emergencies. Rubber plants are perhaps the best buyers at present, although iron and steel concerns are good customers.

Public service corporations have caught up in their fuel supply and are looking forward by laying in a surplus. Railroads are still confiscating a large tonnage and that is hindering shipments to the usual line of commercial customers. Practically no contracting for the coming year has been done owing to the uncertainty of the wage scale.

Out of a production of about 40 per cent in the eastern Ohio field railroads are taking more than half of the tonnage produced and that situation is fraught with much evil. Some of the large users are still short of fuel despite strenuous efforts made to secure shipments.

In the Hocking Valley and Pomeroy fields the output has been about 50 per cent although the car supply is not becoming

better but worse if any change is reported. Little hope for an improvement in the car supply is held out by railroad officials as cars are not being returned to their home lines very rapidly. On the other hand, many coal cars needing minor repairs are lying idle on the side tracks.

The Lake trade is becoming more and more a matter of concern as the time for the opening of the Lake season approaches. Because of the uncertainty in the wage situation, only a few Lake agreements have been made in Ohio territory. These agreements, as they do not approach the stability of contracts, provide for the sale of a certain tonnage, subject to all changes in the wage scale and mining conditions. The Lake season is expected to be unusually strong right from the start.

CINCINNATI

Dealers are having difficulties in getting fuel shipments from mines. Plan to lay their troubles before the reconstituted Coal Administration Committee. Interest is being displayed in urging on the consuming public early storage of coal.

All sizes and grades are in keen demand, with the supply meager. Many concerns are anxious to enter into contracts for their coal for the coming year, but while conditions are as unsettled as now they do not seem likely to meet with much co-operation on the part of the dealers. Considerable tonnage arrived in the terminal the first half of the week, but this was soon distributed among dealers and shipped to other points along the line for distribution.

Enough coal to supply the city for one day came down the river last week. This did not last long as it soon found its way to its hungry industrial consumers. The general opinion is that coal will cost enough more next year to cover an increase to the miners and probably to give a good rate increase to the railroads.

Never in the history of the coal trade, dealers unanimously agree, have conditions been worse than during the past week. A procession of fuel beggars passed through the coal offices the entire week, pleading in some instances for a single car to take care of their patrons. The car supply has shown little improvement, being a little less than 50 per cent. While embargoes were not in evidence, yet there was still much confiscation of coal, though in more limited quantities than had been the case during most of last month.

Although government prices still prevail there are hints and rumors floating about the market that some operators are selling above the fixed price. Domestic trade is strong although the edge of the market is now off. Retail stocks are low and every effort is being made to replenish them. In many instances retailers in certain localities were entirely out of fuel and some suffering resulted.

From present indications the situation in this district is approaching famine although not apparent in the city and surrounding territory immediately contiguous. Many industrial concerns are yelling for fuel to keep their plants in operation. The railroads still continue to confiscate and divert, thus putting the operators and dealers to more discomfort.

Southern

LOUISVILLE

Mild weather and late season result in quiet demand for domestic coal. Production still about 60 per cent normal.

Starting March 15, spring weather descended on Louisville and vicinity, after several weeks of raw weather. This has resulted in demand falling off rapidly with the retail trade, which reports dull business. There is a good demand for car lot coal for industrial use, and a fair demand from local steam plants.

Production at the eastern Kentucky mines continues on an average of three full working days, due to car shortage, although on some railroads the percentage is better, and in western Kentucky shipping is better over the Illinois Central lines.

Many contracts between retailers and producers for block coal at \$4 a ton and up are now expiring, which means the closing out of profitable block business for the operator, and a return to Government price on practically all shipments, as very little block business is held that wasn't taken prior to October.

Some reports are coming in concerning operators charging over Government prices for coal. However, the operator apparently is now charging more than Government prices, but is accepting premiums or bonuses for immediate delivery. It is held that some big industrial consumers in the North

are freely offering the Government, plus a premium of 25c. or more a ton to secure placement.

One jobber was complaining over this condition, stating that when trying to buy coal he found cases where operators were getting a premium on the side, and not willing to sell on any other basis. He charged that this prevented the jobber from buying such coal, where he desired to live up to regulations. It seems that the plan is a secret one, under which the producer bills out at the regular Government price, but receives a separate service payment which doesn't show on the invoice.

A number of coal men report that they have heard of such methods, and there isn't any longer a real secret concerning the plan within the trade circles. While this may be open defiance or defiance under cover of regulation, it is something that can't be helped much longer.

It is held that many operators are sitting still in the boat, and awaiting the outcome of the efforts of the National Association to set aside coal price control. Unless such efforts bear fruit, indications are that there will be open defiance of control, which will carry test cases to the higher courts for decision.

BIRMINGHAM

Car supply at mines shows improvement over last week. Heavy rains flood number of mines and delay movement of coal by washouts. Requirements of the trade far in excess of present output, the market showing great strength in all grades.

There was a marked improvement in the number of cars supplied the mines the past week over the previous one, and consequently production improved to some extent, as did also movement of fuel from the district. However, exceedingly heavy rains fell during the first few days of the present week, and a number of mines were flooded and production suffered considerably on this account. These rains also interfered with traffic by causing washouts and other damages to roadbeds. The car supply was probably 75 per cent of the requirements at the mines.

The trade is experiencing the most active demand that has developed since the strike, Nov. 1 last year, all grades being sought. Almost every coal-consuming interest is short on stock and the mines and distributors are being swamped with orders and urgent pleas for shipments. The railroads are still confiscating some coal, the Southern reducing its order 25 per cent for the current week. Other lines are taking over fuel only as occasion arises—where it is essential to do so—consequently the movement to consignees is more satisfactory than heretofore. Sales are practically confined to spot trade, as the present unsettled conditions bearing on the coal industry generally are not conducive to contract-making. The supply is far from being adequate to meet the needs of the trade for either domestic or steam fuel.

Lake Region

TORONTO

Supplies coming forward more freely. Dealers busy. Consumers anxious to lay in stocks. Bituminous supplies much below demand.

Coal has latterly been coming forward more freely, owing to the improvement in transportation conditions, and some of the yards have fair stocks of anthracite on hand. Large consumers are generally desirous of laying in stocks early for fear of shortage, and business is active, though more or less still hampered by labor shortage.

Supplies of bituminous are far below the demand and many industrial plants only getting enough for temporary requirements. Much anxiety is felt over the prospective shortage in case the threatened strike of bituminous coal miners takes place.

Quotations for short tons are as follows:

Retail—

Anthracite, egg, stove, nut and grate	\$13.50
Pea	12.00
Bituminous steam	11.00
Slack	10.00
Domestic lump	12.00
Cannel	13.00

Wholesale f.o.b. cars at destination—

Three-quarter lump	9.00
Slack	8.00

CLEVELAND

Demand in general has receded. Shipments have increased 100 per cent. Domestic demand has fallen off. Prices of all grades except Pocahontas show a rising tendency.

Bituminous—With demand shrinking because of the milder weather, and mine and railroad operations increased because of it, approximately 60 per cent of the demand is now being met at Cleveland. Not only are all industries getting an adequate supply for their spot requirements, but some slight stocking also has been made possible. The 40 per cent of demand that remains unfilled is largely for stocking. In fact, No. 8 operators have seen their way clear to begin dumping for the lake trade at Toledo. The leading utility in Cleveland now has about a week's supply ahead, which contrasts with a two-day "rubber" recently. Steam-coal users are unanimous in seeking to stock, and it will be months before there is any surplus upon the market.

Operators are desirous of contracting, and so are consumers, but the uncertainty as to prices is proving a barrier. Regular customers have spoken for their supply and verbal assurances have been given by operators. The trade is waiting for some large interest to cut its way through the wilderness; then the rest will follow suit. Three dollars for No. 3 mine-run and slack—an increase of 65c over government prices—still represents the general price idea here.

Meanwhile, prices are slowly but surely mounting. No. 3 Pittsburgh below \$7 for domestic delivery is almost unobtainable, and some domestic bituminous is commanding as high as \$7.50. Every item on the steam coal list has been advanced. No. 3 slack now holds at \$6.00@6.25, an advance of about 25c, while No. 3 mine-run is quoted at \$6.45@6.60, or an increase of 15c. All dealers report prices firming up.

Anthracite and Pocahontas—With the advent of milder weather receipts of both grades have increased, while demand is falling off, with the result that almost all dealers have a slight surplus. Dealers have more anthracite than Pocahontas, although the latter is coming through in fair shape. Dealers look for big buying this spring and summer on the part of domestic consumers. The minimum on shoveled-lump Pocahontas continues at \$9 and on mine-run at \$8. Stove anthracite is up 10c a ton, to \$12.50.

Lake Trade—The first bituminous-coal cargo of the season has been loaded at Toledo. The Pittsburgh Steamship Co., which has the largest Great Lakes coal and ore fleet, has ordered its engineers to its boats April 5. This means a start not earlier than April 20, and prospect of any coal reaching the head of the lakes before May 1 is slight. Iron-ore carrying rates have been fixed at 20 per cent over 1919, equivalent to restoring the 1918 rates. This forecasts what will be done to coal rates.

Prices of coal per ton delivered by retail dealers in Cleveland, are:

Anthracite—Egg, \$12.20@12.40; chestnut, \$12.50@12.70; grate, \$12.20@12.40; and stove, \$12.50.

Pocahontas—Shoveled lump, \$9.00@9.25, and mine-run, \$8.00@8.25.

Domestic bituminous—West Virginia splint, \$8.30; No. 8 Pittsburgh, \$7.00@7.50; Massillon lump, \$7.40@7.65; Cannel lump, \$11.00; and Coshocton lump, \$7.35.

Steam coal—No. 6 slack—\$6.00@6.25; No. 8 slack, \$6.00@6.25; Younghogheny slack, \$5.40@5.75; No. 3, \$6.60@6.85; No. 6 mine-run, \$6.35@6.60; No. 8 mine-run, \$6.45@6.60.

DETROIT

Scarcity of bituminous coal supply continues to menace consumers of steam and domestic stock. Little anthracite moving.

Bituminous—With very little bituminous coal arriving in Detroit the situation continues to arouse anxiety among consumers of steam and domestic coal as well as among the jobbers and wholesalers. Owing to the insufficient receipts the demand from all classes of consumers continues urgent and is inadequately supplied.

Jobbers say that there is no free coal on tracks in or around Detroit and that shipments are sold before their arrival, while the confiscation and diversion of shipments by the railroads reduce the supply to an extent that threatens to force a number of large industrial establishments to discontinue operation.

The continued confiscation of shipments is made more troublesome because of the curtailment of supply due to inability of the railroads to supply sufficient cars or motive power to enable the mines to maintain continuous production at anything like normal capacity. With many mines reporting car supply of 50 per cent or less, the confiscation of a large part of the coal consigned to Detroit creates a shortage of dangerous proportions.

A few days ago the Detroit Board of Commerce arranged a conference with representatives of similar organizations from other towns of the state. At this gathering a report was made of the unsatisfactory progress attained in negotiations through the board's fuel commissioner with Federal officials in Washington. After reviewing the situation in Detroit and other Michigan cities the conference decided to send a committee of business men to Washington. Their prominence would assure that they be accorded respectful consideration.

Anthracite—Though very little anthracite is now being brought in this city the rising temperature this week strengthens the belief that household consumers will not suffer hardship. In some of the retail yards the supply of anthracite is already reported exhausted.

Lake Trade—While the movement of coal from the docks at the head of the Lake indicates there will be an unusually active early demand for Lake coal, the condition of car shortage and urgent demand for coal in lower lake markets is likely to prevent a heavy volume of shipments at the opening of navigation.

Middle West

MIDWEST REVIEW

Spot coal is even more difficult to get today than it was last week, and for that matter, since the war. On all sides it is heard that coal is scarcer and harder to get than at any time before in the history of the industry, except during extraordinary periods such as strikes, etc.

Buyers of large quantities of steam coal who in past years, at this season, have been besieged by aggressive coal salesmen, say they haven't had a visit from a representative of a coal firm since last October. Contracts are to be had for the asking on almost any kind of coal. Furthermore, those desiring contracts are willing to buy their coal at the present Government prices, with the understanding that the Government price will be adjusted on a basis satisfactory to the operators, as soon as Government restrictions are removed.

Government restrictions on the coal industry are growing more irksome day by day, and a number of associations, both wholesalers and operators, are taking steps to have the Lever Act repealed, in so far as it influences the coal industry. For instance, one association has instructed all of its members to request their trade to get in touch with their representatives at Washington, demanding of them that something be done. It appears that the best legal brains to be had in the country all think the Lever Act is unconstitutional and that the Government has no right to hinder the natural course of development of the coal trade. An example, is Mr. William H. Taft's coming out in favor of the Pocahontas operators versus the Fuel Administration, as well as the case being handled by Rush Butler, for the Maynard Coal Co. versus the Federal Trade Commission.

The coal trade in the Middle West was very interested to see, in the daily papers, Mr. Frelinghuysen's plan for the solution of the coal problem. Mr. Frelinghuysen thinks there ought to be a permanent coal board, at Washington, with powers to regulate prices, and he further thinks freight rates ought to be reduced 15 per cent. during summer months, to give the public an incentive to buy coal early. We presume he also plans to have the Government regulators of the industry reduce the price of coal during the summer months so as to give the public an additional reason for buying their coal early.

We have been unable to find out, so far, whether the plan covers domestic coals, or both steam and domestic coals. Representative members of the coal industry in the Middle West are against Mr. Frelinghuysen's plan, because it provides for Government supervision of the industry, and the trade feels that Government supervision has already been tried, both in peace and war, and proved a very lamentable failure. They feel, in addition, that coal ought to be kept out of politics and this would be an impossible thing should the New Jersey Senator's plan go through.

It has been reported that large quantities of coal have been confiscated, and are being confiscated daily, by the railroads. From what we hear it seems that the Pennsylvania is the worst offender in this line. We know for fact that operators having mines which sometimes use the Pennsylvania R.R. as an intermediate carrier, have issued instructions to their traffic departments to route all of their coal via lines

other than the Pennsylvania, except when absolutely impossible. It is rumored pretty freely that the railroads are confiscating coal in order to accumulate a surplus storage, so substantial that they will be in a position to dicker with the operators for a long time and hence beat down prices before they are ready to contract. Whether or not this rumor is true, we cannot say, but we can say it is receiving wide circulation, and it is pretty generally believed.

The all important car situation remains practically unchanged. One or two roads have shown some improvement, but not enough to make any real difference in the situation. Operators have given up all hope of any immediate betterment, as they believe the only way help will arrive will be through building a very large number of new cars, and spending a great deal of money repairing old and worn-out equipment.

CHICAGO

Retail trade has a fairly substantial supply of coal on hand. Not as worried over the immediate situation as they were a few weeks ago. They are still anxious to buy. Buyers of steam coal are not so well fixed, as but few manufacturing plants have a substantial supply of fuel on hand.

It is rumored that Franklin County operators will come out with their spring and summer circular within a few days. It is predicted that a basic price will be fixed for Franklin County domestic coals, and that this price will automatically increase from ten to fifteen cents each month, until fall. If the Franklin County operators establish this plan, it is sure to be followed by other operators and associations, which will no doubt go far toward stabilizing the industry by giving dealers an incentive to stock up during the summer months.

The situation on Eastern coals does not appear to have improved any during the past month. There is some New River and Pocahontas coal from West Virginia moving forward and some domestic coal from southeastern Kentucky, but nowhere near enough to begin to take care of the demand. What little West Virginia coal comes out here is moving on old contracts which were entered into last spring or early summer. Those of the retail trade who buy Eastern coal, and generally buy it on contract, are having great difficulty in getting their usual West Virginia connections to name a contract price. In fact, Eastern operators are none too anxious to take on business, even entered on a basis of price current at time of shipment.

ST. LOUIS

Conditions easing just a trifle but at a critical point in view of rumors over probable strike. Car shortage continues and a good demand for everything produced.

The local situation is somewhat uncertain right now, and the car shortage in all fields continues with a slight improvement. Slight improvement is caused by the easing up in the demand, the pressure for coal not being as great now as it has been. Demand, however, exceeds the supply in all fields.

In the Standard field the car supply still shows a trifle better than two days a week. The railroad tonnage still continues heavy. The Mt. Olive field conditions show some improvement principally because the railroad tonnage is heavy for the Northwest.

There is an undercurrent of dissatisfaction among the miners. They are not satisfied with the recommendations of the mining commission. They seem to think that thirty per cent increase should be the minimum, with a six-hour and five-day a week working clause. Unless something definite is worked out by April 1 the miners in these fields will refuse to go to work from indications.

There is a good supply of this coal at the present time for the St. Louis market but it is not moving out of town in quantities to meet the demand. A good tonnage of the steam sizes is moving north.

In the Cartersville field of Williamson and Franklin Counties there has been a slight improvement that will continue from now on, but the railroads are still hard pressed for fuel, and until this situation is relieved cars will be short and the tonnage small.

On domestic sizes there is a call for spring business that has exceeded the wildest anticipations of any operator in this field. Some of the mines are already sold up for the coming summer.

The miners in this field show less dissatisfaction than in the other fields. In the Duquoin field the Illinois Central shows some improvement the past week with but slightly less than three days' car supply. This promises to improve gradually.

In St. Louis proper very little anthracite is coming in and practically nothing promises for the future, and the same applies to eastern smokeless, while the outlook is not good for Arkansas. Prices are the same and are as follows:

Williamson County Coal Lump, Egg and Nut	Mt. Olive	Standard
\$2.55@2.70	\$2.55@2.70	\$2.55@2.70
Minerun 2.35@ 2.50	2.35@ 2.50	2.35@ 2.50
Screenings 2.05@ 2.20	2.05@ 2.20	2.05@ 2.20
Williamson County rate—\$1.10; Mt. Olive and Standard rate—95c.		

MILWAUKEE

Scarcity of coal causing hardship. Anthracite sold in small lots only. Lake ice conditions hamper supply by carferry. Prices unchanged.

Harsh spring winds, equally as conducive to fuel consumption as real wintry weather, keep the coal situation at Milwaukee tense and unsatisfactory. Some dealers are refusing orders, and coke companies will not promise deliveries within a week after orders have been filed. Long lines of trucks and carts gather at the coal docks daily, awaiting their turn to receive a dribble of fuel, only ton and half-ton lots being the limit, according to circumstances.

These small lots in many cases go to consumers who contracted in advance for a full supply. Relief from the present situation is not expected before the middle of April, when it is expected that coal cargoes will begin to arrive. Ice conditions hamper car-ferry traffic and reduces the coal supply through that source.

At present there is practically no hard coal in Milwaukee, but little coke, and very little soft coal. Rail congestion and coal confiscation by the government are blamed for the unusual stringency. Prices continue unchanged. There are repeated suggestions of an advance on April 1.

Coke

CONNELLSVILLE

Coke production in the Connellsville region has varied from week to week no more than a few thousand tons since the first of the year, and practically the entire output seems to be going out on contract.

Some of the so-called "contracts" are of course merely arrangements whereby the coke is to be shipped and billed at the Government limits so long as they exist.

Afterward the price would be subject to negotiation, with a recourse to cancellation if a price understanding could not be reached. Naturally this leaves little if any free coke, while some furnaces are not receiving as heavy contract shipments as they need and would buy in the open market if opportunity were afforded. There are fewer rumors than formerly of the Government regulations being evaded. Certainly there are no regular market sales at above the set limits.

Some prominent operators have still more pronounced views than formerly along the line that coke will be strong and high priced during the remainder of the year, or after Government regulation is withdrawn, and that withdrawal may occur upon the final submission of the Robinson award in the bituminous wage matter. Last week the commission stopped work, two commissioners holding one view and the other another, the President having since been endeavoring to bring the parties together for a unanimous finding.

It is held in the quarters referred to that there will be a heavy demand for coal by reason of consumers, so greatly inconvenienced in the past few months, building up large stocks, thus affecting the supply of coal for coking, also that blast furnaces will be disposed to stock large quantities of coke. There are other observers, however, who expect overproduction of coke as soon as good transportation conditions come. They say that while the blast furnace industry might use 10 or 15 per cent more coke than they have been getting, the byproduct and bee-hive coke industries could produce at least 25 per cent more coke, given adequate supplies of coke.

The coke market is very quiet and Government prices, while quotable as the market are largely nominal, as follows: Furnace, \$6; foundry, \$7; crushed, over 4-in., \$7.30, per net ton at ovens. The *Courier* reports production in the Connellsville and Lower Connellsville region in the week ended March 13 at 244,470 tons, an increase of 6,184 tons.